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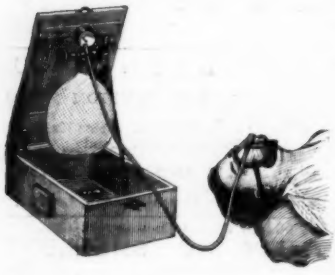

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*Delivered before the Royal Society of Medicine on Wednesday, Jan. 21st, 1920,*

BY K. DIGBY BELL, M.R.C.S., L.R.C.P.LOND.,
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THE study of physical education has been my hobby since 1906, when I was first appointed on the staff of the R.N. School of Physical Training at Portsmouth. At that time I realised that the subject was essentially one worthy of the full attention of the medical profession. Since 1906 the Admiralty has given me many opportunities of studying the subject theoretically and practically outside the navy as well as in it, under varied conditions and in many countries. I have had a year's course at the Central Gymnastic Institute at Stockholm. Of the several billets I have held I feel the most interesting and important has been that to which I was appointed during the four and a half years of war.

In 1914 (after the ship I was then serving in, *Audacious*, had been sunk by mines) I was appointed as one of the medical officers in *Iron Duke*, the flagship of Admiral Sir John Jellicoe, and remained on in that ship when Admiral Sir David Beatty took over the command of the Grand Fleet. I was fortunate enough to be taken over in 1917 to *Queen Elizabeth* when the flag was transferred to that ship. I combined with my duties of junior medical officer in the ship the position of adviser in physical training matters to the Commander-in-Chief. Hence I was kept in constant and close touch with the sports and recreations of the Fleet.

The development of physical training in the navy started in 1902, when the Admiralty decided it was necessary to have a Central Headquarters School of Physical Training in the navy for the purpose of training officers and petty officers to be instructors. After full discussion and inquiry the Swedish system was chosen as being the most suitable for practical application to a large number of men and boys, and for the training of an all-round type of physique. In 1903 the services of Mr. Broman, who was a third-year graduate of the R.G.C.I. of Stockholm, were obtained. He gave his services for six weeks to introduce to the navy the Swedish system of gymnastics. From that date until the commencement of the war the work done at the Headquarters School of Physical Training has been progressive.

At the commencement of hostilities in 1914 the Physical Training School at Portsmouth was closed, so the supply of instructors was cut off.

### RECREATION A NECESSITY.

During the war many valuable lessons have been learned by everybody, and especially has this been the case with regard to our methods of physical training. Up north in the Grand Fleet the spectre we had to consider seriously was the possible onset of a depression due to the incessant nervous strain and ghastly monotony. There we had our men-of-war crowded to their utmost limit with virile human beings, buoyed up with the daily hope that with to-morrow would come "The Day." That to-morrow gradually became weeks and months, and the months extended to over four years, with the ever-haunting thought that another winter was coming on. When it is realised that the mere sight of a tree filled thousands of men with a thrill of intense joy; that to get mud on their boots even once a month was a thing to be proud of to those whose blood called for natural exercise; that they lived in a home in which they could never get away by themselves for one moment's peace; the sort of restless monotony of their lives is not difficult to appreciate. That this monotony cannot be said to have affected the morale of the sailor to any extent was due in great part to the ever-watchful care and forethought of those in charge of units and squadrons in the Grand Fleet. The lesson learnt was that recreation, and more recreation, of a simple and attractive nature for *all* on board ship was wanted. It was always possible to keep the 10 per cent. who excelled at games amused and energetic. They would roller-skate, box, dance, or do anything to keep themselves fit and cheery when weather and other conditions made landing impossible. But it was the 90 per cent. who did not excel at games on whom we had to concentrate, in order to kindle enough energy to shake off the dull and listless mood into which they were unconsciously drifting. Recreational committees were formed and schemes worked out to assist those ships less fortunately equipped and situated. Physical training began to be looked upon in a much bigger light; the study of amusements of a healthy and stimulating nature for the whole community was embodied in it; the need for that psychological element of personal touch between officer and man was never more apparent. So when the Physical Training School was revived at Portsmouth early last year, 1919, the subject had also to be reviewed afresh.

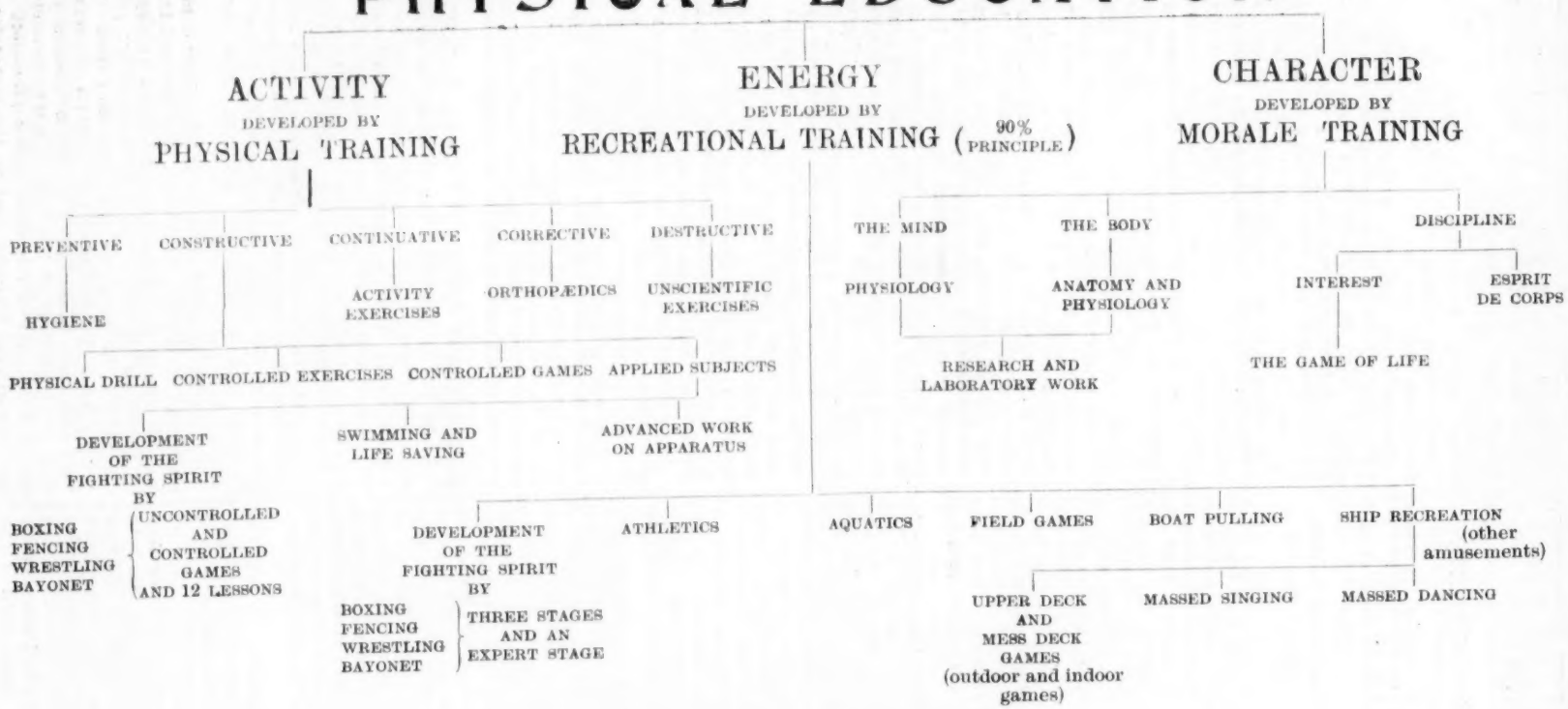
This element of recreation had also been realised as an integral part of the scheme of training in our armies at home and abroad. That exceptionally fine system of treating the trench-weary soldier had been inaugurated by Colonel R. Campbell, D.S.O., at his headquarters of Physical and Bayonet Training at St. Pol. It had to be realised that physical education embodied a larger field of study and research now than was ever believed in pre-war days.

### EXPLANATION OF SCHEME OF PHYSICAL EDUCATION.

I will try to deal with the result of war experience with regard to the reconstruction of our ideas. I particularly wish to place before you a chart of physical education. It is naturally incomplete, but I think it is admirably suited to form the basis of a national scheme of physical education, and will endeavour to prove this. At present we are using it as the groundwork of our scheme for training the officers now under instruction at the R.N. School of Physical and Recreational Training (see chart attached).

We divide physical education into three main headings: (*a*) activity developed by physical training; (*b*) energy developed by recreational training; (*c*) character developed by morale training; and though for the purposes of description I shall run quickly over the branches radiating in sequence from each main heading, yet it must be understood that every portion of the chart is interdependent, the development of character being an object of the recreational training just as the recreational

# PHYSICAL EDUCATION




## THE GAME OF LIFE

1. RULES—
   1. DON'T PLAY FOUL
   2. DON'T CHUCK THE SPONGE UP
   3. GO ALL OUT TO WIN
   4. PLAY FOR YOUR SIDE and NOT FOR YOURSELF
2. REQUIREMENTS—THE ACHIEVEMENT OF THE HIGHEST HUMAN ENDURANCE THROUGH
   1. STOMACH — FOOD
   2. HEALTH — FULL BODILY MOVEMENT
   3. SENTIMENT — SONG and DANCE
   4. HAPPINESS — INDOOR and OUTDOOR RECREATION
   5. COMRADESHIP — INDOOR and OUTDOOR RECREATION

   ON THE 90% PRINCIPLE
3. ACQUIRED BY—SIMPLICITY and ATTRACTIVENESS
4. RESULT—MENTAL AND PHYSICAL ACTIVITY LEADING TO PERFECT MORALE

training is, after all, an essential part of physical training.

Activity is health—the two are inseparable. We all of us realise that as long as a child is active he is in good health; we become anxious at once if his activity wanes or is replaced by listlessness.

(A) *Physical Training.*

So we study activity in our development of physical training which deals with measures which are: Preventive, Constructive, Continuative, Corrective, Destructive.

*Preventive* measures are dealt with by lectures on the anatomical and physiological hygiene of the body, pointing out those elements of daily existence which are harmful to the development of a healthy and active frame. Anatomy and physiology naturally come prominently under this heading.

*Constructive* measures speak for themselves. They involve the application of bodily exercise to the young to ensure as perfect a body as it is possible to acquire. The subject is dealt with under the following headings: (*a*) *Physical drill.* This may be defined as the application of any bodily movement to produce a spectacular effect rather than a constructive effect. An instructor can apply drill, but a teacher works for the constructive effect on the bodies and minds of those he is training. (*b*) *Controlled exercises* embody the minute study of the application of the Swedish system of gymnastics made attractive so as to suit the characteristics of our nation. (*c*) *Controlled games* consist of a large series of those games, taught in the uncontrolled stage under recreational training, which a teacher may wish to employ in his gymnastic table to provide an attractive setting for constructive exercise. (*d*) *Applied subjects* are the connecting link between physical and recreational training, but more easily dealt with under the former heading.

*Continuative.*—No system of education which dose not ensure continuity should be worthy of consideration.

It is necessary to understand the difference between what may be called educative physical training—that is to say, the definite constructive development of the bodies of young and growing people, and the maintenance of physical fitness in the fully developed bodies of those of maturer age. There comes to the latter, sooner or later, a desire for physical improvement, and with it a conviction that some form of daily exercise is necessary to ensure bodily health and activity. Activity exercises have been compiled for this purpose. They are simple in character, take two minutes to do, and provide full and free movement of the body in an interesting and attractive form.

*Corrective.*—Orthopædics is a subject which at once calls for the knowledge and assistance of the medical profession and for the research work embodied in the last heading on the chart.

*Destructive.*—A teacher of physical education should know what evil effects may accrue from an injudicious use of bodily activities. This subject is dealt with by lectures and practical demonstrations of such unscientific exercises, done with or without apparatus, which can be proved to be destructive both anatomically and physiologically.

B. *Recreational Training.*

Here we have an essential element in the scheme of physical education. It is the very foundation of the science. It provides measures for dealing with all types of pure recreation, and must be applicable to the majority rather than the minority. We all know the inestimable value of the sports and games in our own schools and universities. But there are those whose football and cricket consisted more often of noisy squabbles and fighting than of playing for their side; whose only chance of learning something of our so-called national sports was by watching a football match where 22 paid players performed and thousands looked on.

Recreation develops energy, and energy is dwindling because more people are willing to watch than to take part; 10 per cent. wish to play and 90 per cent. are content to watch.

This term—the 90 per cent. principle—is used in connexion with the recreational training scheme depicted on the chart, and requires brief explanation. It is agreed that perhaps 10 per cent. of the population have a natural tendency to excel at sports and games. In the past the needs of these have been specially catered for. The 90 per cent. have never indulged systematically in sports and games, principally because they have not had the opportunity, or possibly they have been discouraged by their lack of ability to compete with the 10 per cent. This scheme of recreational training applies principally to the 90 per cent., and provides for them an immense range of physical and recreational activities, a new and hitherto undeveloped incentive to enjoy them, and an organisation whereby the utmost advantage as regards development of energy and character may be secured. The six subheadings, development of the fighting spirit, athletics, aquatics, field games, boat-pulling, and other amusements, must be understood to cover something quite apart from their everyday meaning. A Recreational Training Handbook, which deals only with this subject, has been compiled, though not yet published, and contains these six sections:—(i.) Energy exemplified. (ii.) The classification of physical effort. (iii.) The standardisation of all physical activities (300 and more types to date). (iv.) The method of rewarding 90 per cent. (collective) effort. (v.) The introduction of the scheme. (vi.) Musical activities. The headings on the chart under which this recreational training is developed speak for themselves.

The development of the fighting spirit is obviously fostered by the practice of certain sports involving the use of weapons. From a national rather than a naval point of view such pastimes may be considered inadvisable. It may be said they produce the idea of a hateful militarism, the savour of war. The heading could be left out, or the subjects taught could be those which develop the spirit of self-defence. Be that as it may, the methods of teaching the sport chosen are conducted on the same lines, first as an *uncontrolled* game, then *controlled*, with at first one simple rule which must be kept, then another rule, and so on until the game is completely controlled, the pupils themselves acting as judges to see fair play or to penalise any breach of the rule. The next stage is that of *90 per cent. contests*, in three degrees, and an expert stage, so that *all* can compete without having their interest in the game cramped by the 10 per cent. who excel. *10 per cent. competitions:* Championships as usually held to-day. In this manner athletics, aquatics, fixed games, boat-pulling, ship recreation (which in a national scheme would read other amusements) are also conducted.

For example, let us suppose a school wishes to run an athletic sports meeting at which *every single boy* is to compete, and his individual effort is so marked as to have an important bearing on the result for his house.

We look at our Classification of Physical Effort in the Recreational Handbook to choose an event from each heading, so that the programme of sports will be representative of all the necessary degrees of effort, of which we find 11 headings. Now for one of these (the agility part of our programme) we may choose the 100 yards race. Every boy has to run and the time he takes to cover the 100 yards is converted into a percentage on a known factor of skill, which represents his share towards the aggregate marks of his house. Then by a simple score-sheet (the arrangement of which is all explained in detail) the average marks of the whole team or house are arrived at, and every single competitor can feel he has done his bit, and thus energy and his desire to "go all out" for his side is cultivated and encouraged.

*Massed Singing and Dancing.*

Of the heading "ship recreation or other amusements" I would like to add a few remarks. For upper deck and mess deck games could be substituted outdoor and indoor games (of which we have collected a great number). In massed singing we have a really interesting psychological element. We sing when we are happy and cheerful, and by encouraging massed singing we can intoxicate crowds into being happy and cheerful. Music deals with the sentimental side of a nation's character, and true sentiment is an overpowering force which can be guided for good or evil. Patriotism and love of our Alma Mater are developed and stimulated by suitable songs, and for this reason the subject is revived here. The bluejackets simply revel in participating in our musical activity evening at our Portsmouth school, and sing folk-songs and sea chanties with great zest.

Massed dancing is another way of dealing with sentiment. The war opened our eyes to the power of dancing as a recreation; evening after evening on the upper deck of our big ships we could hear over our heads the swish and stamp of the feet of hundreds of sailors pacing out the D'Albert or Valeta. That dancing appeals to the mass of our nation is more and more apparent. I am not alluding to the Jazz craze, but to the more stately and graceful dances, and the simple country, Morris, and sword dances.

C. *Character Developed by Morale Training.*

Herbert Spencer wrote: "Of the ends to be kept in view by the legislator, all are unimportant compared with the end of character making—this alone is national education." The development of character permeates the whole of this scheme of physical education. In the scheme shown it is dealt with under headings which are particularly the work of the medical man. Lectures on psychology and on the psychology of teaching are given. Lectures, assisted by the microscope, magic lantern, and specimens, deal with the simple truths of cell life, of elementary botany, and of reproduction. The sex question is developed at some length. I am one of those who have learned by experience the importance of instructing the young, simply and normally, to know the truth about their bodies, thus cultivating self-reverence and self-control.

These subjects are all included under the headings on the chart—the mind, psychology, the body, anatomy, and physiology. Though the subject is dealt with here in as practical a manner as possible, it is realised that in a national scheme, where its survival in a nation must be aimed at, the study of character would be further developed under other headings—e.g., religion, idealism, ethics, &c. Research and laboratory work is needed, and will undoubtedly come.

Discipline is a subject of the utmost importance these days, when both employer and employed should be trained to understand its intricate nature.

We deal with it on the lines of *esprit de corps* and interest as opposed to a discipline by fear of punishment, as far as the young are concerned. The last item on the chart is put down as "The Game of Life" for want of a better title. It embodies in it the whole ideal of this system of physical education; it must be not only understood, but brought into every development in order to ensure success. Its spirit is being inculcated into the youth of the nation by the "Boy Scouts" movement. I cannot help feeling myself that had it been embodied into our whole educational system for the last 10 years or more, the industrial unrest of to-day and the use of the strike weapon might never have shown themselves.

WHY WE ARE A C 3 RACE.

Such are the lines on which we are trying to reconstruct our methods and teaching at the Naval Physical and Recreational Training School at Portsmouth, and anyone desiring to come and see the work in practice will be welcomed.

That some system of national physical education is necessary to-day has been made only too forcibly apparent to us all. It must have been a shock to every thinking man to realise that during the critical days of the last year or two of the war only 36 per cent. were fit to fight. Certain words used by General Sir H. S. Horne, speaking at Bradfield College early last year, have never to my knowledge been contradicted, though I had hoped they might be. The papers quoted him as having said: "It was utterly scandalous that the British should have ranked at the bottom—he had not the figures, but he believed at the bottom—of the list as regards physical fitness of the nations from whom they were able to obtain statistics during the war."

I personally feel there are three great reasons why we found ourselves to be a C 3 race: (1) We have allowed the spirit of competition to concentrate on the training of a few specialists in one or other of our national sports, to the detriment of the mass of less fortunate citizens, who are not considered worthy of attention, as they perhaps do not shape well. I pointed out in a lecture to the United Services Medical Society in 1909 that specialising in one or other kind of sport was one of the evils gradually depressing the all-round physique of the whole nation. I said then that if we were to go to war it would be the all-round physique we should want, and want in vain, and unfortunately I have not been proved wrong. (2) The fact that the subject of physical education has not been taken up seriously by the nation, but has been left to private enterprise and so-called experts in various methods. The instructors have often had only a few weeks' instruction in how to conduct stereotyped exercises. So far as men are concerned, the Swedish system of gymnastics has never been appreciated in this country. There are several women's colleges where two years' training was the minimum, and this is now being extended to three years. The type of instructor employed is another point in this connexion. We need the university student, the officer rather than the man, and, moreover, central control by the Government is essential. (3) The most important reason for

our physical deficiency, in my opinion, is the fact that the subject has not been studied sufficiently by doctors. Our medical schools teach anatomy and physiology more with the ultimate object of curing disease than of preventing it.

The chart I place before you to-day is far from being my work or that of any medical man; but it is the result of 17 years' practice and constant study on the part of a retired naval officer of the combatant branch—Commander B. T. Coote—who is at present assisting us at Portsmouth in the capacity of civilian adviser to our school. The teachers (where there are any) and the instructors at our boys' schools in nearly every case have no medical training, nor even in most cases the support of the school doctor. I hold that until the movement is taken up wholeheartedly by the medical profession it will lack the public support essential to its success.

NEED OF A SYSTEM OF PHYSICAL EDUCATION.

This brings me to the crucial point which I have set myself to place before you. The country urgently needs a more comprehensive and a better organised system of physical education, and, gentlemen, it is up to our profession to see that it gets it. I do not presume that you should go away with the idea that this chart depicts *the* system that is wanted; I place it before you for want of anything better. It certainly treats the subject in its proper sphere of importance and magnitude, and it forms a basis for thought and future development when more research is devoted to the subject. I do not wish to infer that the navy alone realises the necessity for recreational training. The army and Air Force have adopted such methods for some time past, and we are all working on the same ideas for one national object. The Board of Education also has recently published a new syllabus of Physical Training for Schools (1919) giving suggestions to their teachers in which the importance of games of all sorts is distinctly realised, and a certain number of indoor and outdoor games are suggested. But a central controlling body of this huge branch of preventive medicine is needed to-day. We have now a Ministry of Health. Could not this or another Government body be approached by a strong appeal from the medical profession of Great Britain for: (1) The formation of a National Council of Physical Education to study and elaborate the lines our national system of physical education should take; (2) the formation of a British Physical Educational Association on some such lines as our present British Medical Association, to control all members practising physical education in Great Britain; (3) the formation of a Central Gymnastic Institute where teachers of physical education could be educated on such lines as would be directed by the national council, and obtain the certificate of the association mentioned above.

The matter is urgent. The Prime Minister himself coined the expression that we are a C 3 nation from the facts given him by the medical profession, and he said we must become an A 1 nation if we want to remain a great empire. But a lethargy seems to overshadow the question as to who is to take action. Early last year the headmasters of our big public schools included the subject of physical education in their Annual Conference. The President of the Conference says:—

"I approached the Board of Education in my capacity as chairman of the Headmasters' Conference to push for proper Government control with regard to training experts of physical education—i.e., the necessity for a National College of Physical Education. I was given clearly to understand that the Board of Education could not view matters in this light and considered such a development should be left to private enterprise."

Last May the United Services held a Physical Training Conference at which were present representatives of our colonies and a member of our Board of Education. There were many issues under discussion, but the most important one was round the problem of creating a central organisation such as a Physical Training University for the Empire as a whole, to embrace all classes, civil and military. The proceedings ended in the formation of a subcommittee consisting of one member from each of the Services with the representative of the Board of Education to sit as chairman (subject to approval of the Board of Education), and I had the honour of being elected as the naval representative. This subcommittee was to prepare a paper to be submitted to the main conference with a view to its being put before the Government. This subcommittee was to be called as soon as information was received that the Board of Education had sanctioned their representative sitting as its chairman. That was on May 20th, 1919. It is now Jan. 21st, 1920, and no subcommittee has been called. Who is to take action? The headmasters have failed, the desire of the United Services met with no response; but the medical profession may succeed in awakening the country to the necessity of such a measure of preventive medicine.

# An Address

ON THE

# INDICATIONS FOR CÆSAREAN SECTION.

*Read before the Midland Obstetrical and Gynæcological Society at Derby on Dec. 2nd, 1919,*

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GENTLEMEN,—In 1752 Mauriceau, in his "Diseases of Women with Child," referred to the operation of Cæsarean section as "a damnable policy martyring and killing the mother to save the child, and never to be done till the mother was dead." In 1910, or 158 years after Mauriceau's very plain-spoken observation, Amand Routh published his report upon Cæsarean Section in the United Kingdom before the Fifth International Congress of Obstetrics and Gynæcology at Petrograd. For the purpose of this investigation Routh collected material from over 100 obstetric surgeons, and was able to accumulate details of 1282 cases. The paper may claim, therefore, to represent the current views relating to this operation in the United Kingdom at that time. Almost ten years have elapsed since its publication. Nearly five of these years have been occupied by war, but throughout this period, although very little has been published, the science and art of obstetrics has continued and, we hope, progressed. During and after years of conflict the lives of mother and child are of the highest national importance. The present appears an opportune time, therefore, to discuss the indications for an operation designed to eliminate maternal and fœtal mortality. Are the risks of Cæsarean section

lessened, and have its indications become extended as the result of the publicity of Amand Routh's paper?

In every obstetric operation, whether it be performed by nature *per vias naturales* or by the surgeon, certain postulates must be fulfilled before an unqualified success can be claimed. These may be enumerated as follows: 1. There must be no maternal mortality. 2. There must be no maternal morbidity. 3. A living and viable child must be born. The factors which demand consideration, therefore, in discussing the indications for Cæsarean section compared with other methods of delivery in difficult labour are, on the one hand, maternal mortality and morbidity, and on the other fœtal viability.

The first observation that I would make is that I believe the popularity of Cæsarean section amongst obstetric surgeons is increasing. No figures have recently been published, but information obtained from various sources goes to show that the method of delivery is not approached to-day with the same feeling of apprehension that it engendered a few years ago. It is probable that if a similar investigation was now conducted as that by Routh barely ten years ago a much greater fund of material would be available. With increasing confidence and detailed technique the mortality of Cæsarean section also appears to be diminishing, and it is more than possible that an era will arrive when the operation is considered to be the safest mode of delivery in the majority of cases of complicated labour.

Broadly expressed, the indications for classical Cæsarean section, and it is with this operation alone that the paper is concerned, may be divided into two groups.

(*a*) Cases where a definite obstruction to the passage of the child exists, either from disproportion between the fœtal and maternal bony parts, malpresentations or neoplasms, &c.

(*b*) Cases where urgent delivery is called for in the absence of previous dilatation of the birth canal either for the sake of (1) the mother, as in eclampsia; (2) the child, as in placenta prævia.

### THE PLACE OF CÆSAREAN SECTION IN CONTRACTION OF THE PELVIS.

What is the present-day view with regard to Cæsarean section as the method of treatment in cases of pelvic contraction? The three other modes of procedure available are: (1) induction of labour before term, (2) symphysiotomy or pubiotomy at term, or (3) craniotomy. A few years ago we used to direct our conduct by the measurement of the conjugata vera. If the latter measured 2½ inches to 3 inches Cæsarean section was the method preferred, provided the membranes were intact. If, however, it measured over 3¼ inches and the head presented, the indication was to induce labour at the thirty-fifth week. Personally, I lay less and less stress upon pelvic measurements and place more and more importance upon Müller's method of adapting the fœtal head to the pelvic brim. It appears futile and grossly unscientific to pin one's faith upon a measurement when after all it is but relative to another factor which is unknown. Müller's method is of great value in estimating the moment when it is advisable either to induce labour or to decide upon a section later on. This raises the problem as to whether after all we *are* correct in inducing labour. The maternal mortality of induction is certainly nil, whilst in Routh's series of cases the maternal mortality of uncomplicated Cæsarean section is 2·9 per cent.; in other words, that of other gynæcological cœliotomies. However, the fœtal mortality in induced labour is still considerable. Thus Eden states that out of 309 cases of pelvic contraction at Queen Charlotte's Hospital during the four years 1905–1908 101 had a premature labour induced by Krause's method. The fœtal mortality was 13 per cent. The average weight of the infant was from 5 to 5½ lb. The argument therefore resolves itself into whether we are to risk a possible maternal mortality of 2·9 per cent. for the sake of lowering the high fœtal death-rate of 13 per cent? Personally I am of the same opinion in this respect as Hastings Tweedy, and think that induction is not advisable. A woman risks a mortality of 2 per cent. to get rid of a fibroid; why should she not therefore risk a similar mortality for the sake of a healthy living child at term?

Pubiotomy and symphysiotomy will never, I believe, have a wide application owing to the high maternal mortality and morbidity. Thus in Munro Kerr's series of 275 cases of symphysiotomy from all sources the maternal mortality was 6·5 per cent. and the fœtal mortality 10 per cent., not very encouraging, to say the least. Herbert Spencer has published considerable data relating to the morbidity of pubiotomy, quite sufficient anyway to discount any possible advantages of the operation.

I turn now to the vexed question of the place of Cæsarean section in those cases where the membranes have ruptured and delivery has been attempted per vaginam—in other words, the so-called "suspect cases." This group is, and as long as it occurs will always be, a stigma upon the medical profession. If women were properly examined during the later months of their pregnancy disproportion between the fœtal head and the pelvic brim would be discovered, and these cases would not occur. Every case of obstructed labour at term from this cause is a reflection upon the obstetric skill and care of the medical attendant. The risk of Cæsarean section, once repeated and persistent attempts at delivery by high forceps have failed, is magnified nearly 15 times. In Routh's figures the mortality of the operation in cases where attempts have been made to deliver by forceps or where repeated examination has taken place is 34·3 per cent. Simple rupture of the membranes without examination is not such a grave accident, although serious enough. The mortality in such patients is 10·8 per cent. What is the alternative procedure? It is, of course, craniotomy, with its maternal mortality of 8 per cent. and a morbidity of 20–30 per cent. If the child is dead there is, of course, no question as to which is the proper procedure. What is to be done, however, when the child is alive? Personally, I would not perform craniotomy upon a living child. I have been confronted with the problem upon two occasions recently, and in each case I deliberately chose to deliver by the abdominal trans-peritoneal route, previously employing Maxwell's method of intra-amniotic lavage with saline. I was lucky in that both mothers recovered without morbidity. In a case obviously septic my practice would be to drain the pelvis into Douglas's pouch, with possibly a lateral rubber drain into each flank. I await discussion of these points with considerable interest, as I recognise that I am on highly debatable ground.

### INDICATIONS OF CÆSAREAN SECTION FOR UTERINE HÆMORRHAGE.

Ante-partum uterine hæmorrhage occurs, of course, in the form of accidental hæmorrhage and bleeding due to placenta prævia. Has Cæsarean section a place in the treatment of either condition? In the case of concealed accidental hæmorrhage with a tense tender uterus with inertia the operation is most certainly called for. Most people are agreed that in order to save the mother Cæsarean supravaginal hysterectomy is the correct procedure. The mortality of the complication is high, and the only method of reducing it is to proceed at once to Cæsarean hysterectomy without attempting other methods and wasting valuable time.

What is to be done, however, for placenta prævia? The maternal mortality is not great, varying in different clinics from 2·5 to 3·5 per cent. In a series of 41 cases recorded by Hastings Tweedy during the seven years of his mastership of the Rotunda Hospital two mothers died. The fœtal mortality is, however, appalling. Thus, in Tweedy's series of 41 cases 24 of the children were born dead. This high fœtal mortality is, of course, due to two factors; the first is the separation of the placenta and the interference with the fœtal circulation; the second is the method of treatment by version and bringing down a leg, a method designed to save the mother at all costs at the expense of the child. When Amand Routh published his report ten years ago the general opinion of British obstetricians was that as a routine treatment of placenta prævia there was no place for Cæsarean section. This opinion was expressed in a discussion upon a paper read by Dr. Henry Jellett, and the only recognised indication for Cæsarean section was "where the cervix was so rigid and undilatable that the treatment by bi-polar version as first suggested by Braxton Hicks was impossible." As I have already stated, however, no treatment is satisfactory which does not bring maternal and fœtal mortality to its lowest limit. The arguments advanced in favour of bi-polar version are all to the credit of the mother and to the debit of the child. Is this right, and if wrong, can it be altered? It appears to me that if by means of an operation with a mortality of little more than 2 per cent. we can afford a saving of fœtal life and lower the terrible fœtal mortality of the generally accepted method of bi-polar version that operation ought to receive more attention. Kronig and Sellheim publish 26 cases of Cæsarean section for placenta prævia with no maternal mortality, and, mark this, no fœtal mortality. In the available statistics every attention is paid to maternal mortality, and it is argued that as the existing method of delivery is so safe for the mother, why alter it? The infant is quite a secondary consideration. I would combat this argument in the strongest terms. If a method is available in which, without imposing undue risk upon the mother, the child may also be saved, then, in my opinion, that method should be adopted. In other words, if in a case of placenta prævia the child is alive and of a viable age I would unhesitatingly resort to Cæsarean section in preference to risking the child's life by bi-polar version. The indication for the operation will depend, therefore, entirely upon the date at which the placenta calls for evacuation of the uterus. If hæmorrhage occurs at a period before there is a reasonable chance of the child surviving, and, of course, if it is so severe as to have caused fœtal death, then bi-polar version is the operation of choice.

### THE INDICATION FOR CÆSAREAN SECTION IN ECLAMPSIA.

The third and last group to which I wish to draw your attention is the place of Cæsarean section in the treatment of ante-partum eclampsia. The argument in favour of rapid evacuation of the uterus in this condition must rest, of course, upon the concession that the placenta is the source of the toxæmia. If this is granted, and there are many points in its favour to which I need not refer on this occasion, then Cæsarean section offers the safest method of conserving the lives of the mother and child. Eclampsia is a serious disease, and *general* statistics show that it is accompanied by a maternal mortality of from 20 to 30 per cent. The fœtal mortality is also high, about 39 per cent. The majority of cases of eclampsia occur in primiparæ before the onset of labour. The cervix is undilated, and if evacuation of the uterus is necessary and advisable the alternate modes of delivery are either accouchment forcé or vaginal Cæsarean section. Accouchment forcé is to be condemned. It is unscientific, and the results of the procedure are bad. Vaginal Cæsarean section, on the other hand, does not appear to offer the same advantages as the abdominal route. Access, especially in primiparæ, is not good, and consequently the operation is not so rapid. Added to which, there is liable to be more bruising of the soft parts and consequent risk of sepsis. There appears to be a special predisposition of the tissues to septic infection in cases of eclampsia, and for this reason the method of rapid delivery which is least liable to bruising and sepsis is best. The vagina is not so easily rendered sterile as the abdomen, in the emergency attached to any obstetric operation for eclampsia. For these reasons I believe the abdominal method to be the best route.

I am one of those who believe that rapid evacuation of the uterine contents is an all-important factor in the treatment of eclampsia, but I also believe that it should form the *earliest* method employed. Here I differ from the view generally held and advised by Dührssen and Bumm—viz., that it is inadvisable to empty the uterus by abdominal or vaginal Cæsarean section "after the first fit," as 75 per cent. recover without such operation. This figure, 75 per cent. of recoveries without operation, looks well, but what of the other 25 per cent.? Is not the first eclamptic convulsion the danger signal? If so, why delay and temporise with methods designed to combat the toxæmia already existing? Surely the ideal treatment is to remove at once the source of the toxæmia and then fight the latter with every available means. The Rotunda method of treatment by gastric and enterolavage combined with morphia and the administration of sodium bicarbonate is undoubtedly good, with a mortality of only 6 mothers in 74 cases, as published by Hastings Tweedy. Might it not be even better, however, if combined with immediate evacuation of the uterus upon the first indication of the disease? Dührssen and Zweifel have stated that improvement is greater in eclamptic patients after artificial than after spontaneous delivery. Is it not possible that in the latter the toxæmia is greater owing to the longer retention of toxic material?

The present general high mortality associated with eclampsia probably exists because treatment is not standardised and every man is a law unto himself. My own practice is to combine the Rotunda treatment with immediate evacuation of

the uterus upon the first indication of the condition. If labour is not in progress and the cervix is undilated I always resort to Cæsarean section as being the most rapid and the safest method.

### CONCLUSION.

In conclusion I may say that for the purpose of this paper I have referred to principles and not enumerated cases. As a matter of interest, however, I may state that on looking through my case-histories for the past 12 months I find that I have performed Cæsarean section upon 11 occasions. The indications were as follows:—

| Indications. | Cases. | Maternal mortality. | Fœtal mortality. |
|---|---|---|---|
| Pelvic contraction: Flat pelvis | 2 | Nil. | Nil. |
| " " Round " | 5 | " | " |
| Placenta prævia (central) ... ... | 1 | " | " |
| Eclampsia ... ... ... ... ... ... | 3 | " | 1 |

The maternal mortality was therefore nil, and one baby only was lost. This baby died upon the fifth day, and its death was due, I believe, to neglect upon the part of a nurse. Four of the cases of Cæsarean section were performed in the patients' own houses and as emergencies without any preparation, such as is the usual routine before a pre-arranged abdominal section. There was no mortality and no morbidity, which goes to prove that the operation may be performed with safety provided that adequate surgical principles are observed at the time.

There were two cases of maternal morbidity, both in nursing homes. One was a case of eclampsia in which the patient's doctor had ruptured the membranes before admission. The other was a case of flat pelvis, where intra-uterine sepsis occurred on the eighth day, in spite of the fact that no vaginal examination had been made prior to operation and the membranes were intact. In this instance the infection was traced to a nurse with a septic finger who was attending the patient. Both patients, however, recovered, and the morbidity cannot be attributed to the choice of the method of operation.

## CEREBRO-SPINAL FEVER IN INFANTS AND YOUNG CHILDREN:

## ITS TREATMENT AND AFTER-EFFECTS.

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EIGHT cases of cerebro-spinal meningitis in children under 8 years of age came under my care between September, 1916, and July, 1917. The series, though short, is, I think, one of considerable interest, and illustrates some of the main points with regard to this disease in young children.

### *Method of Treatment.*

All these patients were treated by repeated lumbar puncture and the intrathecal injection of polyvalent antimeningococcal serum prepared by the Lister Institute. A general anæsthetic was rarely administered. There was not a single death, though some were very severe chronic cases of the posterior basic type.

The plan followed, speaking generally, was to continue the administration of serum daily until no meningococci could either be found in direct films or grown in culture from the cerebro-spinal fluid, and to continue lumbar puncture as long as the intrathecal pressure remained excessive. Exceptions to this plan of treatment are mentioned below. The dose of serum given varied according to the quantity of fluid withdrawn and the intrathecal pressure. As much as 20 c.cm. was given, in a single dose, to an infant of four months.

The series is too short a one for any generalisations, but I attribute the recovery of these cases to two causes: (1) The efficacy of the serum administered, and (2) the large number of lumbar punctures performed.

### *Mortality and Sequelæ in Young Children.*

Before the introduction of serum treatment the mortality in infants ranged, according to Flexner, from 90 to 100 per cent.[1]; whereas F. E. Batten gives the following figures for endemic posterior basic meningitis in London: "15 per cent. recover completely, 35 per cent. survive, but exhibit some permanent defect, either mental impairment, hemiplegia, diplegia or blindness, while the remaining 50 per cent. prove fatal."[2]

Dr. Josephine Neal, in a series of 76 children under one year treated with serum, had a mortality of 50 per cent. Others record a mortality of from 48·6 per cent. to 64·2 per cent.[1]

An adult who recovers seldom shows any permanent after-effects of the illness,[3] but it is otherwise in young children, partly because they so frequently come under treatment late in the disease on account of the not uncommon insidious onset and the difficulty in diagnosis, and partly because in their case the cranial capacity is not a fixed quantity, and therefore the increase in pressure is more gradual than in the adult.[4]

### *Necessity for Repeated Lumbar Puncture.*

In chronic meningitis the intrathecal pressure appears to remain persistently high for a greater length of time than in acute cases; consequently, I believe it is absolutely necessary in most cases of posterior basic meningitis to practise prolonged lumbar puncture in addition to the administration of serum, although I am aware that various authorities have stated that harm might result from a large number of lumbar punctures.[5] If this is to be performed daily for many days, it is best to dispense with a general anæsthetic whenever possible on account of the disturbance to feeding thereby involved.

The cases given below have all been examined about two years after the attack of meningitis with a view to ascertaining the after-effects, if any, left by the disease.

CASE 1.—Charles W., then aged 2 years 9 months, was admitted to the Royal Free Hospital on Jan. 6th, 1917, on the sixth day of his illness, and was an in-patient for 43 days. On admission he was well nourished, T. 101°, P. 92, unconscious, with general rigidity and head retraction, herpes round the mouth, and furred dry tongue. The cerebro-spinal fluid was turbid with a large deposit of polymorphonuclear pus cells and many intra- and extra-cellular meningococci. Lumbar puncture was performed daily, with one exception, from the sixth to the twenty-third day of illness, and again four times subsequently—20 lumbar punctures in all. He was given seven doses of serum, followed by the administration, commencing on the twenty-first day of illness, of an autogenous vaccine. A lumbar puncture as late as the thirty-eighth day of illness revealed a fluid which, though normal in character, was still under considerable pressure, but on the forty-second day only 2 c.cm. were withdrawn. The temperature (excepting for a serum reaction from the twenty-fifth to the twenty-ninth days of illness), was

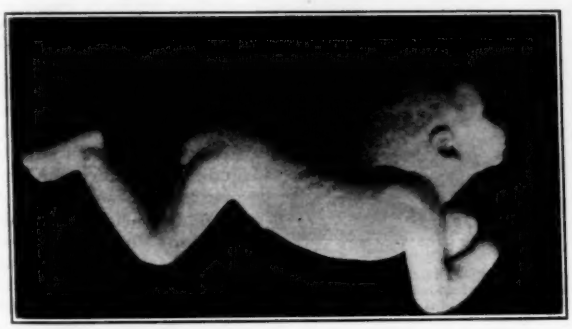
practically normal after the fourth day in hospital. On discharge, the forty-eighth day after the onset of disease, the child was in a very drowsy, semi-stuporous, mental state, and unable to sit up. His vision was apparently normal, but he was, so far as could be ascertained, stone deaf—he took no notice when a cab-whistle was blown behind his back. I considered him one of the failures of serum treatment, as I believed all mental development was likely to be arrested.

In July, 1919, he was seen again, when he was a well-developed, intelligent, though shy child of 5 years old, 3 ft. 9½ in. tall (average for age 3 ft. 5½ in.). He is not actually stone deaf, but for what he understands of the spoken word he is apparently almost entirely dependent on lip-reading, and is consequently, as his teacher reports, slightly backward in attainments for his age. Miss E. Lowry, M.B., who kindly sent me a report on the ear condition, says that the tympanic membranes are normal in appearance. She was not able to ascertain to her satisfaction what degree of bone conduction was present, but it appeared to be fair. Mr. Malcolm Hepburn examined the boy's eyes, and reported that the appearance of the optic discs was normal (no record of vision is possible).

**It will be seen that in this case deafness (presumably a nerve deafness), is the only disability left, yet in spite of this the child understands nearly all his mother says to him, and is himself able to talk, although it has been stated that "below the age of 7 or 8 years permanent deafness usually leads to an associated mutism; even though speech has begun it usually disappears."** [6]

CASE 2.—Arthur M., then aged 8 months, was admitted to the Royal Free Hospital on March 13th, 1917, about three weeks after the onset of his illness, and was an in-patient for three months. On admission he was absolutely unconscious, with general rigidity, and lay in the typical attitude of head retraction with flexion of all the joints of upper and lower limbs. Strasbismus and inequality of pupils were present. The child was fairly well nourished. The fontanelle barely admitted the tip of the finger, and consequently changes in intra-cranial pressure could not be estimated by palpation. Cerebro-spinal fluid was withdrawn under considerable pressure; it was slightly turbid and microscopically showed polymorphonuclear cells and numerous meningococci, chiefly extra-cellular. Lumbar puncture and the injection of serum were performed daily for seven days, by which time meningococci had disappeared from the cerebro-spinal fluid. On the eighth day only 1 c.cm. of blood-stained fluid was withdrawn very slowly, although lumbar puncture heretofore had revealed a fluid under pressure. The three subsequent lumbar punctures were dry, and it was supposed that adhesions had developed preventing the outflow of fluid. Head retraction increased after admission till the occiput touched the back, strabismus was marked, and as there was difficulty in swallowing and progressive wasting feeds by mouth were supplemented by nasal feeding for over six weeks. The temperature only once reached 100°, on the third day in hospital; on the whole it showed little variation from the normal. The photograph of the child shows his condition on about the fiftieth day of disease.

FIG. 1A.



CASE 2 (Arthur M.).—Aged 9 months, about fiftieth day of illness. The wasting was much more marked than is apparent in this photograph.

After about four weeks in hospital spontaneous, though slow, improvement set in. Recovery was much delayed by an attack of diarrhœa and vomiting. Emaciation was extreme, his weight fell from 17 lb. 8 oz. to 11 lb. 14 oz. When he left hospital there was slight head retraction and he was not able to sit up in bed and took but little notice of his surroundings. However, six weeks later, at the age of 12 months, he was doing well in all respects; all head retraction had disappeared, he was strong and gaining weight, and took took an interest in all he saw.

His mother gives the following account of his recovery. For some weeks at least after leaving hospital the child did not recognise her, but he steadily improved. He was clean in his habits at about 15 months. He began to talk at 18 months and spoke well at 2 years. He did not walk steadily however, until he was 2½ years old. He is now (July, 1919) 3 years 2 months old, is well developed for his age, and appears thoroughly intelligent. Hearing is normal, and apparently the only disability now present is some strabismus. Mr. Hepburn states that this condition appears to be due to an error of refraction, for which he has ordered glasses. The discs are rather pale, but there is nothing to indicate that this is a pathological, not a normal, pallor. (The mother states there was no squint before the attack of meningitis.)

FIG. 1B.

The same case aged 3 years 2 months. Physical and mental development normal—the only disability is a squint, stated by the mother to date from the meningitis.

**It seems probable that this was not a true case of blockage of the outflow of fluid from the ventricles to the spinal canal, but that the failure to obtain fluid at subsequent lumbar punctures was due to hæmorrhage caused by pricking a vessel on the previous occasion. This is a not infrequent occurrence in young children. During convalescence as much as 30 c.cm. was withdrawn. This case also illustrates the very slight amount of pyrexia sometimes present in chronic cases.**

CASE 3.—Ernest W., aged 4 years, was admitted to the Royal Free Hospital on March 26th, 1917, on the twenty-third day of his illness, and was an in-patient for nearly five months. On admission he was extremely wasted and white. The temperature varied from 97° to 102° F., the pulse was very poor, 120 to 168 or more. He lay on his side scarcely moving, head retracted, back arched, unconscious, and eyes half shut. His limbs, however, were flaccid. There was well-marked evidence of rickets with bowing of the legs. The cerebro-spinal fluid showed polymorphonuclear pus cells and isolated pairs of intracellular meningococci Twenty-five lumbar punctures were performed in all; one daily till the fifteenth day after admission (thirty-eighth day of

disease), and after that at longer intervals until the seventy-third day of disease. 30–60 c.cm. were generally withdrawn each time during the first 15 days, and as a rule 30–40 c.cm. at each of the subsequent lumbar punctures. The high intrathecal pressure persisted for over six weeks after the commencement of treatment—i.e., nine weeks from the onset of illness. Nine intrathecal doses of serum were given, and an autogenous vaccine was also injected. Cultures made from the fluid withdrawn on the forty-fourth day of disease grew a few colonies of meningococci after 48 hours' incubation, but the temperature was normal on the forty-fifth day, and, as no meningococci were found in the fluid from subsequent lumbar punctures, no more serum was given. The cerebro-spinal fluid, though still under increased pressure, was normal in character on the fifty-second day.

The course of the disease for about the first 80 days in hospital was thoroughly unsatisfactory. At first the child's general condition became steadily worse, and when the temperature became normal there was still no improvement. Emaciation was extreme, the pulse feeble, rapid and irregular, the head was retracted till the occiput touched the back, there was now great general rigidity, strabismus, and also incessant twitching of the face and of the right arm and leg for days on end. For 45 days nasal feeding was employed, at first to supplement nourishment by mouth, but for more than half that time it was the only method of feeding used as the patient was unable to swallow. On the eighty-eighth day after admission, 111th day of illness, he swallowed food again for the first time.

From about this time on he steadily improved; the twitching ceased, the rigidity and head retraction diminished, and nutrition improved. Concurrently the hairs on the trunk and limbs took on rapid growth, so that he was soon covered with quite a thick coat of hair, similar to that sometimes found in marasmic children, but much thicker than in any other case I have seen. After improvement set in a partial paralysis of the left side of the face became apparent. During the last few weeks of his stay in hospital the child would frequently scream, sometimes for several hours at a time, but apart from this he lay like a log in bed from morning to night, taking absolutely no notice of his surroundings.

The history for the first six months after discharge is given by the mother: For about one week after going home he screamed constantly. Ten to fourteen days after discharge he pointed at something he wanted—this was the first sign of intelligence he gave. After this his mental faculties developed like those of an infant learning for the first time. One month after discharge he began to talk, two months later he was talking as well as before his illness "excepting for a stutter." He was clean in his habits from about the same date onwards. Five to six months after leaving hospital he could walk. Later he attended out-patients, and at that time he was enormously stout, presumably on account of insufficiency of the posterior lobe of the pituitary body due to the very chronic meningitis. He has now, July, 1919, entirely lost his thick coat of hair. He is still stout, though less so than before, his weight is 3 st. 11 lb. (average for a 6 year old, 3 st. 3 lb.), his height is 3 ft. 4½ in. (average for age, 3 ft. 8 in.). Hearing is normal; there is no obvious defect of sight. Mr. Hepburn reports "slight blurring of edge of disc above on temporal side, but nothing much; rest of disc normal."

He is a good-tempered child, stolid, and rather shy. A neighbour tells me he is quicker and more intelligent than a 5 year old adopted sister. He is certainly backward for his age (6 years 2 months). He cannot, for instance, count objects, although he can repeat his numbers correctly; but, on the other hand, he is capable of doing errands, and is occasionally successful in performing the "triple errand" of the Binet-Simon tests for a child of 7 years old. The day before he last attended his mother sent him to buy old potatoes, and the child recognised and refused to take new potatoes which were offered him in the shop. The paralysis of his face and the squint have disappeared, but he seldom uses the right hand and arm, which are slightly weaker than the left (probably now on account of want of use). He frequently carries his head not quite upright; the left ear is approximated to the left shoulder. The bowing of his legs noticed at the time of his admission to hospital is now extreme.

FIG. 2A.

FIG. 2B.

CASE 3 (Ernest W.).—Aged 6 years 3 months. The photographs show the obesity (probably due to hypopituitarism resulting from meningitis), the tilting of the head to the left, and the rachitic bowing of the legs.

**Like the first two cases described, this patient shows both the marvellous extent to which recovery may take place in an apparently hopeless case and also the persistence of high intrathecal pressure in chronic cases. If such a case were to come under my treatment now I should continue the administration of serum for a longer period. In this patient no organisms were found after the forty-fourth day of the disease, but as the intrathecal pressure remained high and improvement did not set in until after the 100th day it seems probable that meningococci persisted for some considerable time after the forty-fourth day, and were finally overcome by the resistance of the patient himself. Aaser grew meningococci from the cerebro-spinal fluid of a child with hydrocephalus more than two years and eight months after an attack of posterior basic meningitis at the age of 9 months, and he considers that hydrocephalus occurring after cerebro-spinal meningitis is really evidence of a chronic inflammatory process going on in the meninges.[7]**

**Treatment with pituitary extract has been commenced in the hope of improving his mental and physical development. As a rule, motor palsies disappear, as they have in this case.**

CASE 4.—Mary S., aged 5 months, was admitted to the Royal Free Hospital on May 19th, 1917, about the tenth day of illness, and was an in-patient for over nine weeks. The onset of illness had been very insidious. On admission there was a bulging fontanelle, slight

head retraction, and rigidity of the hamstrings. The temperature was 100·4° F. and the pulse 160. The patient was small for her age and weighed 9 lb. only. At the first lumbar puncture 7 c.cm. of blood-stained fluid was obtained containing meningococci, but after this little or no fluid could be obtained from the spinal canal (except on the seventeenth day of illness, when 10 c.cm. came out slowly), though lumbar puncture was attempted on ten occasions, the last shortly before the child's discharge. On the fourteenth day of illness head retraction was marked and bulging of the fontanelle extreme. Ventricle puncture was performed, and 35 c.cm. of slightly turbid fluid, containing great numbers of extra-cellular diplococci, was withdrawn, and 10 c.cm. of serum injected. On the sixteenth day 40 c.cm. of clear sterile fluid was withdrawn from the ventricle, and 10 c.cm. of serum injected. Next day 10 c.cm. was withdrawn by lumbar puncture as mentioned above, and 4 c.cm. of serum was injected. This was the last dose of serum given.

The temperature became normal about the nineteenth day of illness, but hydrocephalus steadily increased until there was very wide separation of the bones at the cranial sutures. Strabismus was marked, and there was much screaming, frequent vomiting, diarrhœa, and great wasting. 50 to 110 c.cm. of fluid was withdrawn at each subsequent ventricle puncture. Twenty-one ventricular punctures were performed in all, the left ventricle being tapped on each occasion, and the needle, so far as possible, passing through the same puncture hole and in the same direction with a view to causing as little damage as possible to the brain substance. After the last ventricular puncture, on the fifty-third day of illness, the puncture wound remained open, allowing a continuous escape of fluid in sufficient quantity to soak through a dressing of gauze and wool in a few hours' time. The wound did not heal for four or five days. The temperature for a few days was unsettled, but henceforth the fontanelle was level and no longer tense. The child began to improve, apparently as a result of the relieved pressure, and when discharged a fortnight later she was taking her feeds well, there was no vomiting, and she was gaining weight. Head retraction was still present.

This case was complicated by an effusion into the left knee-joint, and the knee was twice aspirated and turbid yellow fluid withdrawn. This was accompanied by pyrexia lasting about ten days.

The mother states that head retraction persisted for about two and a half months after discharge, and the child could not sit up unaided for about five months—i.e., until she was 1 year old. She did not walk well until 2½ years of age. For some months she was under treatment at St. Thomas's Hospital for rickets, and there seems little doubt that her backwardness in walking was largely due to this disease. When 1 year old she could say one or two words, but her progress in talking has been slow. On the other hand, she could sing "The Wearing of the Green" and one or two other songs with a good idea of tune before she was 2½ years of age.

When seen in September, 1919, when she was 2 years 9 months old, she would often pronounce a whole sentence clearly, though at other times she might repeatedly utter one of which not a single word was intelligible. She passed successfully nearly half the Binet-Simon tests for a child of 3 years of age. From the mother's account it appears that, though the child is now backward, her progress has been much more rapid since the improvement of the rachitic condition. Her physical development, including the shape of the head, is normal. The circumference of the head is 19¾ in., the normal for 3 years being 19 in. There was some enlargement of the radial epiphyses, and very marked bowing of the femora, the convexity forwards. Strabismus was still present. She generally fixed objects with the left eye. Ophthalmoscopic examination has not been made.

**It may be interesting to compare with this a case recorded by Netter, in which chronic meningococcal meningitis in a child, aged 21 months, was complicated by blindness. Improvement in vision in this case coincided with the relief of intracranial pressure brought about by a lumbar-puncture wound remaining open and the fluid escaping into the tissues of the back.[8] Such cases suggest the possible benefit that might attach to the establishment of continuous slow drainage into the subcutaneous tissues by surgical means before permanent hydrocephalus is established. In cases where drainage is established by accident the risk of secondary infection must, of course, be considerable.**

**Cases of recovery after ventricular puncture are comparatively rare. Dr. Josephine Neal states that in her series of 76 cases of epidemic cerebro-spinal meningitis in children under 1 year 11 developed a block preventing the outflow of fluid from the ventricles, and 6 of these were treated by ventricular puncture, but all proved fatal. Another case treated by ventricular puncture recovered, but ther seems some doubt as to whether there was in this case a true block. As an indication of the danger of and the damage to brain substance which may result from ventricular puncture, this author quotes the case of a child of 7 months so treated, who at the age of 4 years was a helpless imbecile. But from the account given it would seem more probable that this condition resulted from the hydrocephalus itself.[1]**

**Fairley and Stewart also comment on unfavourable results obtained by ventricular puncture. "Ventricular puncture and decompression by trephining was performed in nine subacute or chronic cases with signs of internal hydrocephalus. All terminated fatally, but in several cases the patient's life was prolonged. It is noted that 3 out of 19 cases of internal hydrocephalus recovered spontaneously."[9]**

**The occurrence of a synovial effusion into the knee-joint in this case is of interest. I believe it is rare for the joint to be attacked in infants. Osler and Still state that a joint affection when it occurs in infants is generally periarticular, and, according to Rolleston, it is usually the joints of the hands and feet that are affected in infants.**

CASE 5.—Stanley C., aged 4 months, was admitted to the Royal Free Hospital on June 28th, 1917, on the third day of his illness, and was an in-patient for 36 days. On admission he had a temperature of 104·2°, pulse 160, respiration 80, tense bulging fontanelle, very slight rigidity of the neck, and occasional twitching of the limbs. Lumbar puncture revealed a turbid fluid with many meningococci.

This case showed a recrudescence. The temperature remained practically normal from the eighth to the twelfth day in hospital, cocci had disappeared from the fluid and the administration of serum was stopped. From the thirteenth to the seventeenth day pyrexia was again present, and cocci reappeared in the fluid. Twenty lumbar punctures were performed, but four were dry. Thirteen doses of serum were given. Normal fluid was obtained under normal pressure on the twenty-first day. The child was discharged apparently recovered.

He was seen again in June, 1919, when he was 2 years and 4 months old. He now has severe rickets with much bowing of the legs. His weight is 1 st. 9 lb., instead of the normal 2 st. 1 lb. He learned to walk after the age of 2 years, and can now only say a few single-syllable words. He understands simple commands and appears fairly bright. He comes from a poor home, where there is often insufficient food, and is the eighth child of the family, of whom only one other is surviving, and it seems probable that his general backwardness is due to causes other than the meningitis.

**In this case, as in Case 3, more serum appears to have been indicated at first. Possibly it would be a safe rule always to give at least two doses of serum after meningococci have ceased to be found in the cerebro-spinal fluid, as thereby one might lessen the chance of a recrudescence, which presumably is always due to the survival of a few organisms in some part of the central nervous system.**

CASE 6.—James D., aged 4 months, was admitted to the South Western Hospital, Stockwell, on Sept. 24th, 1916, and was an in-patient for 57 days. He was certified as a case of scarlet fever, and had a history of four days' malaise. On admission there was nothing to suggest scarlet fever, excepting a flushed skin and slight pyrexia. There was constipation, but no vomiting or rigidity of the muscles of the neck or limbs, and the fontanelle was level. On the tenth day of illness the child lay with his head slightly retracted, and next day, though tension at the fontanelle was still normal, there was in addition slight rigidity of the cervical muscles and hamstrings. Lumbar puncture was performed (eleventh day of illness); 6 c.cm. of turbid fluid were withdrawn under normal pressure, and the same quantity of serum was injected. A very few intra- and extra-cellular meningococci were found in the fluid. The fontanelle was not tense at any stage of the illness. Ten successful lumbar punctures were performed (on several occasions no fluid could be obtained), and seven doses of serum given, the last on the twenty-fifth day of illness. Latterly, the child appeared to be growing worse in spite of the serum and consequently no more was given, although meningococci were found in the fluid withdrawn on the thirty-first day. About this stage diarrhœa supervened and rendered the outlook still more unfavourable. On the thirty-fourth day the injection of vaccine was begun. Three different vaccines, prepared from three different strains (type unknown) were given, one dose of each, followed up by an autogenous vaccine. On the thirty-sixth day the fluid appeared practically normal, although the child's condition was growing worse, and two days later there was present the so-called "undulating type" of respiration (respiration resembling the Cheyne-Stokes type, except that no periods of complete apnœa occur), and the pulse was very feeble, although the fontanelle remained level. However, from the fortieth day onward improvement was steady and rapid, and on the forty-ninth day all rigidity had disappeared, and the child was obviously thriving.

The boy's general development, mental and physical, is now (September, 1919) excellent. He began to walk before he was 1 year old and to talk at about 1½ years, and is a bright, intelligent little chap of 3.

**This case is of interest for several reasons: (1) It came under observation early, apparently during the pre-meningitis stage, but was not diagnosed until the eleventh day of illness, the first day on which there was any rigidity of the cervical muscles. It is a good illustration of the difficulty of early diagnosis in infants. (2) It was atypical in that throughout there was no obvious increase in intracranial pressure—I believe a very unusual phenomenon. Dr. Neal reports absence of a bulging fontanelle in 5 out of 76 cases.[1] (3) Serum treatment with the Lister polyvalent serum produced no visible improvement; very possibly the strain of meningococci was different from that present in the other cases. Unfortunately, the type was not ascertained in any case belonging to this series. (4) The child abruptly began to improve on the fortieth day (although undulating respiration had supervened), just before the injection of the first dose of autogenous vaccine, possibly, of course, as a result of the strain of organisms in the third dose of stock vaccine. (5) Improvement, when it began, was much more rapid than in most of the cases of the series in whom treatment was commenced late. Possibly the rapid improvement was associated with the previous absence of increased intracranial tension.**

CASE 7.—Ernest S., aged 7 years, was admitted to the Royal Free Hospital on March 17th, 1917, on the second day of illness, and was an in-patient for about five weeks. The onset of the disease was sudden, accompanied by vomiting and convulsions, and on admission he was semi-conscious and presented a typical picture of cerebro-spinal meningitis, with marked head retraction. He had herpes on the lips and developed a similar eruption on the cheek and forefinger. No organisms were found in the direct films, but meningococci were grown in culture. Ten lumbar punctures were performed and nine doses of serum were given. The patient was rational, and fluid was sterile and nearly clear on the sixth day of illness, but, as the temperature had not settled, treatment was continued for a few days longer. A serum rash appeared on the eleventh day. Rigidity of the neck had almost disappeared by that time, and he made an uninterrupted recovery. He is now 10 years old, and his teacher states that his intelligence is normal for his age.

Miss Lowry reports that he has very slight deafness of the middle-ear type. He has adenoids and the right tympanic membrane is scarred. His mother says that after discharge he complained of headache, and still does so at times. It is hoped that the early removal of his adenoids will cure the headache.

**This case presents a fairly typical picture of cerebro-spinal meningitis in an older child at an age when early diagnosis is as a rule much easier, and shows the increased rapidity of recovery usually consequent on early treatment.**

CASE 8.—John J., aged 7 years. This case should, perhaps, not be included in the series, as, although one or two pairs of diplococci were found in direct films made from the slightly blood-stained fluid obtained at the first lumbar puncture, no meningococci were grown in cultures. However, he had meningismus accompanied by well-marked optic neuritis, and made an uninterrupted recovery under treatment with lumbar puncture and intra-thecal administration of anti-meningococcal serum. Many observers record a small percentage of cases which are almost certainly cases of meningococcal meningitis, but in which the diagnosis has not been clinched by growing the organisms from the cerebro-spinal fluid, and consequently I include this case, though I recognise that the diagnosis is open to doubt.

This child is now (July, 1919) a quick, healthy-looking boy of 10, and Mr. Hepburn reports: "Vision in each eye 6/6, discs perfectly normal and a good colour and well defined." It was not possible to test his field of vision. Different observers have placed the incidence of optic neuritis at very different figures. Rolleston states that it is usually regarded as infrequent, and that it is especially related to the septicæmic type of infection,[10] whereas Fairley and Stewart place it at 41 per cent.[11]

*Conclusions.*

**The knowledge which I, personally, have derived from following up these patients is that no matter how hopeless a chronic case of cerebro-spinal meningitis may seem, the patient may with adequate treatment make a complete, or almost complete, recovery. So far as can be judged at present, all the children described above should develop into useful members of society. I ascribe these good results largely, as already stated, to the continuance of lumbar puncture as long as the intrathecal pressure remained excessive.**

**To summarise results. Of the 8 cases, 5 (Cases 1, 2, 6, 7, and 8) are now healthy, well-developed children with normal mental faculties, although**

2 suffer from a disability—i.e., deafness (Case 1) and strabismus, stated by the mother to date from the meningitis (Case 2). As an indication of the severity of the disease in Case 1 it will be remembered that as late as the forty-eighth day he was still semi-stuporous and unable to sit up. The same point is illustrated in Case 2 by the photograph and the fact that he required nasal feeding for over six weeks. Case 6 was also a severe chronic case, but in this instance the intrathecal pressure was never high.

The three remaining patients (Cases 3, 4, and 5) are mentally backward, but it is difficult to say to what extent this is due to the rachitic condition from which they have all suffered. In Case 5 both the physical and mental backwardness may, I believe, be wholly ascribed to rickets, whereas both diseases were probably factors in the production of the present mental condition of the other two cases. In Case 3 treatment was not begun until the twenty-third day, the child was unable to swallow for over three weeks, and at the end of five months in hospital he appeared demented, yet now the only after-effects are some backwardness, adiposity, and a very slight localised muscular weakness, probably now merely the result of disuse. In Case 4 there was internal hydrocephalus and 21 ventricular punctures were performed, but the only after-effects now apparent are some backwardness and strabismus.

I regret that I have not had the opportunity of testing this method of treatment sufficiently often to obtain statistics thereon, and it is, of course, impossible to generalise from such a small number of cases, but in view of the striking recoveries described above it would seem worth while giving prolonged lumbar puncture (in addition, of course, to the administration of anti-meningococcal serum) a more extensive trial in chronic cases with a persistently high intracranial tension, as, though doubtless practised by some, it is not, I think, the method of treatment in general use.

Permission to publish the cases was kindly given by Dr. Foord Caiger, Dr. J. W. Carr, Dr. Hazel Chodak, Dr. A. Phear, and Dr. P. W. Saunders, under whose charge the patients were admitted to hospital. I should also like to express my indebtedness to Mr. Hepburn for his kindness in examining the children's eyes; to Dr. Eleanor Lowry, who examined the ears; to Dr. Mary Schofield, and Dr. Kathleen Armstrong, who carried out the examination of the cerebro-spinal fluid; to Dr. Nora Crow, who spent much time and trouble in obtaining the photographs illustrating this paper; and to Dr. Chodak, who has very kindly assisted me in following up Case 4, which was admitted to the Royal Free Hospital under her charge. My special thanks are also due to Dr. J. W. Carr, who was, I believe, the first to point out the relationship between the posterior basic meningitis of infants and epidemic meningitis,[12] for his encouragement, and the interest he has shown in this investigation.

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# ŒDEMA AS A SYMPTOM IN SO-CALLED FOOD-DEFICIENCY DISEASES.

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THROUGHOUT the whole world, at different times and in many diverse places, epidemics have broken out, having as their main feature a more or less extensive dropsy. As might be supposed, these epidemics occurring so diffusely have been described independently by many observers. Having observed one such epidemic on a small scale, it appeared to me that a correlation might be made between this and other similar outbreaks with the view to determining, if possible, a common ætiological factor, or, at least, to make a short comparative study of such conditions.

It is proposed first to give a brief account of the various epidemics, and then discuss their possible common origin.

## I. *Œdema occurring in Turkish Prisoners of War in Egypt.*

In August, 1916, I was appointed one of the medical officers at a prisoner of war hospital in Cairo. The prisoners consisted mainly of Turks with a sprinkling of Arabs. Some of them were admitted direct from the various fronts where they had been captured, while others had been stationed for a longer or shorter period in one or other of the big prison camps in the Cairo district.

Almost immediately certain outstanding features among a proportion of the cases presented themselves. 1. Certain cases died apparently from dysentery, which when examined post mortem revealed very slight intestinal lesions; cases which, in the vivid language of the fifth year medical student, should not have died. So marked was this that one had recourse to a metaphysical explanation based upon Mahomedan ideals and the fatalism of the East. 2. The great emaciation presented by some of the patients resembling nothing so much as the appalling pictures indelibly associated in one's mind with Indian famines. 3. The extraordinary degree of anæmia noticed especially in malarial cases. Some of these had a red cell count of only a little above 1,000,000 and a very low hæmoglobin percentage. 4. The presence of œdema varying from a slight pitting about the shins to a condition of general anasarca involving all the serous cavities.

It was supposed after further observation that these striking facts could be explained on the assumption that we were dealing with ordinary tropical pictures of disease aggravated by a common factor underlying them all. The above conditions having been brought to the notice of the headquarters staff, Brevet Major P. Manson-Bahr was detailed to study the matter. In this work I assisted him.

It was found that a few of the cases were suffering from malignant malaria, but the cachexia was so extreme that one felt that this was not the only cause. Then it was thought for some time that beri-beri might be the true diagnosis. In fact, certain observers diagnosed the cases as such. But upon further observation it was found that there were no heart symptoms and that there was no definite neuritis. It is true that some of the cases presented absence of knee-jerks, but this could

be explained by the general asthenia. Also the vague pains and tenderness in the legs noted from time to time were in all probability of psychic origin. In fact, the condition only resembled beri-beri in the presence of œdema. It was remarked at the time that the only known clinical picture resembling this was that of so-called "epidemic dropsy" described in India.

In the autumn of 1916 pellagra was first noticed among the Turkish prisoners. Immediately on this discovery it was felt that the œdema must have some food deficiency as its explanation. This will be referred to later in the general discussion.

I have full notes on 24 of the œdema cases before the outbreak of pellagra. The main features are set out as follows:—

I. *Extent of the Œdema.*

| | | | |
|---|---|---|---|
| General anasarca, including serous cavities | 8 | Legs and face | 4 |
| Feet and legs | 11 | Legs and sacral region | 1 |

II. *Previous Dysentery or Malaria.*

| | | | |
|---|---|---|---|
| Malaria only | 3 | Both malaria and dysentery | 8 |
| Dysentery only | 10 | Neither malaria nor dysentery | 3 |

III. *Anæmia.*

| | | | |
|---|---|---|---|
| R.B.C. 1,500,000 and below | 4 | Anæmia nil or slight | 17 |
| R.B.C. 1,500,000–2,500,000 | 3 | | |

IV. *Variation in Knee-jerks.*

| | | | | | |
|---|---|---|---|---|---|
| Normal | 16 | Sluggish | 3 | Absent | 5 |

Of these 24 cases 8 died, the remainder being discharged from hospital as cured. Later it was attempted to trace these 16 "cures" with the view to seeing how many had developed pellagra. All could not be found, but 4 had developed in the meantime true pellagra.

Post-mortem examinations were performed on the 8 fatal cases (for three of these I am indebted to Major Manson-Bahr). The results may be summarised as follows: Bacillary dysentery lesions in the intestines were present in all 8 cases. Ascites was noticed in 5, pleural effusion in 3, and pericardial effusion in 1 case. All the organs appeared small; the heart showed the condition known as "brown atrophy" in 7 of the cases. Only in 1 was there a fatty liver; in others this organ was small. Tuberculous bronchial glands were present in 2 cases.

**Œdema has not hitherto been recorded as a clinical feature of pellagra, so it is fitting that the following facts concerning its incidence in these cases should be noted. 64 cases of true pellagra were studied from many aspects; it is only my intention here to deal with the one symptom—œdema.**

V. *Incidence of Œdema in Pellagra Cases.*

| | | | |
|---|---|---|---|
| Œdema observed | 36 | No œdema observed or mentioned in history | 21 |
| Œdema in history only | 7 | | |

VI. *Extent of the Œdema* (36 cases).

| | | | |
|---|---|---|---|
| General anasarca | 7 | Legs and face | 0 |
| Legs and feet | 29 | Legs and sacral region | 0 |

VII. *Incidence of Previous Malaria and Dysentery.*

| | | | |
|---|---|---|---|
| Malaria only | 1 | Neither malaria nor dysentery | 30 |
| Dysentery only | 25 | | |
| Malaria and dysentery | 8 | | |

VIII. *Time Relations between Onset of Œdema and Pellagrous Skin Manifestations.*

| | | | |
|---|---|---|---|
| Total pellagrins with œdema | 43 | Œdema synchronous with rash | 15 |
| Œdema before rash | 24 | Œdema after rash | 4 |

Careful blood counts were made on 25 cases:—

IX. *Blood Pictures.*

| | | | |
|---|---|---|---|
| R.B.C. 1,500,000 and below | 2 | R.B.C. up to 3,500,000 | 9 |
| R.B.C. up to 2,500,000 | 2 | R.B.C. above 3,500,000 | 12 |

The absolute leucocyte count in the majority approximated to normal, but a relative lymphocytosis was present in some. Of the 25 cases, 17 had a lymphocytosis of over 30 per cent. and 10 over 40 per cent.; the highest count was 60 per cent. Eosinophile cells showed on the average 1·5 per cent., the highest count being 6 per cent. The colour index in 14 of the cases was normal, in 5 below 1 and in 6 higher than 1. No organic disease of the heart, no kidney disease, no marked diuresis, and no bradycardia were observed in these cases. Diarrhœa, of course, was common to all, and the blood pressure of the pellagra patients was found to be very low. Of these 64 pellagra cases, 25 died.

This, then, is a brief account of the œdema epidemic as it occurred among Turkish prisoners of war during the autumn, winter, and spring of the years 1916–17. The question of pellagra itself will be dealt with in a subsequent paper.

II. *War Œdema in Europe.*

This condition was first observed in January, 1917, among prisoners of war camps and in large towns throughout Germany. Its onset was apparently sudden, with œdema occurring as a rule in the feet and legs, but occasionally in the thighs and trunk. In more than one-half some degree of facial swelling was noticed; in one-sixth there was œdema of the hands, and in one-ninth ascites was also present. There were no cardiac symptoms, except marked slowing of the pulse, and the urine contained no albumin. The blood showed a reduction in R.B.C. of from one to two million. Diarrhœa was fairly common. It appears that as soon as the patient was put to bed a marked diuresis occurred and the œdema rapidly disappeared. Remissions and recurrences were fairly common.

War œdema then appeared in Vienna with great suddenness. Schiff[1] drew attention to the similarity of this condition and beri-beri and other diseases depending upon a failure of vitamines. Baucke[2] described a series of cases where the œdema was only on the face, and in extreme cases on the neck and backs of the hands. This he attributes to the sun's rays, which were very intense at the time. Bradycardia again was a pronounced feature.

Schittenhelm and Schlecht[3] observed more than 200 cases of war œdema in men from 19 to 33 years of age. In these bradycardia was associated with an extremely low blood pressure. All the men were in a state of malnutrition, as shown by complete absence of fat and a considerable reduction of albumin, as shown by the very low concentration of the serum on refractometric examination of the blood.

The disease was then remarked in the reconquered Italian territory. Cases were described by Pighini.[4] No men in the prime of life were affected, and the food conditions were very bad.

In Bohemia the condition was studied by von Jaksch.[5] In 1917 "hunger œdema" was discovered in 22,842 persons, of whom 1028 died. He found in the blood a lymphocytosis to be not uncommon. Jansen[6] found that R.B.C. varied from 1·5–4 millions, that the colour index was often higher than 1, and that there was a relative lymphocytosis of 30–55 per cent.

His[7] has noted that war œdema occurred in Turkey among starving persons and convalescents, and also as an independent disease.

Another very important point observed in some of the cases was the presence of certain skin manifestations. Petenyi,[8] working at Budapest, in 106 cases found only 3 with normal skins. In all the rest the skin was extremely dry, and presented more or less considerable desquamation. Reach[9] noticed much pigmentation of the scrotum in his cases.

As regards the ætiology of war œdema many explanations have been advanced. It appears that men were more affected than women, and young

children not at all. By far the most accepted explanation of the condition is one based upon a food-deficiency factor. Some workers regard previous dysentery, typhus, relapsing fever, and tuberculosis as a cause, but such are in a small minority. Von Jaksch[5] states that the disease appears whenever the calories in the diet fall below 1400, and that a deficiency of carbohydrates and fat is the cause. In August, 1917, when the affected districts received an adequate supply of potatoes war œdema began to diminish. Most workers agree to a great diminution of albumin in the body in this disease, together with marked wasting of all the organs, including endocrine organs, in post-mortem examinations.

Regarding the actual cause of the œdema itself two theories are brought forward: (1) that toxic products of albuminoid metabolism may damage the endothelial lining of the blood-vessels, and so cause œdema; or (2) that it is due to a calcium deficiency which apparently increases the permeability of the vessel wall.

### III. *Epidemic Dropsy.*

This condition was first described in India during the cold season of 1877–78. In the following summer it disappeared, but broke out again in the cold season of 1878–79. This second outbreak was spread over a wider area, the first having been observed only in the region of Calcutta. Again, in the cold months of 1879–80 the epidemic was observed, and this time over a still wider area. It vanished during the hot weather of 1880. About the same time isolated outbreaks occurred elsewhere in India and a similar condition appeared in Mauritius.

Apparently the subject was then forgotten, and no further outbreaks were recorded for 20 years. In 1901 cases of epidemic dropsy again made their appearance in Northern Calcutta. These were pronounced to be the same as had occurred in previous epidemics. In 1902 there was an outbreak in Bengal, and again another in Calcutta in 1908–09. This last was fully reported upon by Major Greig,[10] to whose careful observations much of the present note is due.

The initial symptoms are pyrexia, gastro-intestinal disturbances, paræsthesiæ, and deep-seated pains throughout the body. Dropsy was an initial, or, at all events, an early symptom. It was noticed chiefly in the lower limbs, occasionally in the arms, body, and serous cavities, and rarely in the face. Vomiting and diarrhœa were common early symptoms, and dysentery sometimes occurred during the course of the disease. In a considerable proportion of the cases, according to Macleod,[11] the skin surfaces became erythematous or affected with an urticarial, scarlatinal, or morbiliform rash. Eczema, desquamation, and excoriation were sometimes observed later. Anæmia was a constant feature, so much so that in Mauritius the disease was known as "acute anæmic dropsy." Greig[10] and Megaw[12] found an increase in the lymphocytes, both relative and absolute.

Greig, in his conclusions on the Calcutta outbreak in 1908–09, states:—

1. That no causa morbi is to be found in the blood, œdematous fluid, excreta, &c. of epidemic dropsy cases.
2. That the features of epidemic dropsy very closely resemble those of "ship beri-beri."
3. That the evidence points to epidemic dropsy being non-infectious.
4. That there is evidence to show that epidemic dropsy is a nutritional disease, and is brought about by a one-sided dietary.
5. That the two severe outbreaks of epidemic dropsy in Calcutta and Bengal ..... have been correlated with a sustained high price of food grains during the period, and the cessation of these epidemics has synchronised with the fall in the price of food.

### IV. *Ship Beri-beri and Scurvy.*

Ship beri-beri might be described as beri-beri without neuritis. Thus Nocht,[13] working in Hamburg, and the Norwegian Ship Beri-beri Committee,[14] state that symptoms of neuritis of the limbs are comparatively rare. Nocht only found neuritis in 4 of his 34 beri-beri ships, while the Committee only observed it in 4 out of 57 ships. Holst[15] agrees with Nocht that ship beri-beri is a food disease "showing a marked congruence with scurvy."

After the occupation of Rangoon in 1826 Waddell[16] noticed that the troops were affected with scurvy. He wrote: "In all the worst cases the feet became œdematous, and however apparently mild the other symptoms might have been, this affection was an almost certain prognostic of approaching anasarca, hydrothorax, and death." He also adds that diarrhœa was a common symptom in these cases.

Norman Chevers[17] apparently also was acquainted with a malady similar to epidemic dropsy and the above conditions. To this disease he gave the name "Morbus Bengalensis." He describes it thus: "Throughout his daily work, the powerful influence of this condition of chronic semi-starvation, not merely in the poor Bengali himself but throughout his entire race and generation, is constantly obtruding itself upon the physician who says: 'This man's constitutional malady is malnutrition, anæmia, asthenia, complicated with fever, dysentery or what not.'" As Greig well says: "If we replace Chevers's 'what not' with the symptoms swelling of the feet and breathlessness, a fairly complete description of the features of epidemic dropsy results."

### V. *Œdema in East Africa.*

This section of the paper is supplied by E. S. Stubbs (M.D., Ch.B., B.Sc., late Capt., R.A.M.C.). Unfortunately, his important communication is somewhat long, so I have taken the liberty of abstracting it. He deseribes a condition diagnosed beri-beri which was prevalent among native troops in Jubaland (on the northern border of British East Africa). The diet of these troops had been at times without fresh food, and consisted chiefly of polished rice. In 1917 a paper on cases of beri-beri in a barrier hospital in German East Africa was circulated, but apparently the general opinion was that the disease was ankylostomiasis and not beri-beri at all. Captain Stubbs met a medical officer who was himself convalescent from the disease.

Apparently, among European troops in East Africa there were no cases of unexplained œdema except the above-mentioned cases of so-called beri-beri. "Most of my work," writes Captain Stubbs, "was with native carriers, chiefly Kavirondos and Kikuyus. I was at once struck by the great number of cases showing anæmia and persistent œdema of gradual onset. Examination of the urine often showed albumin, sometimes a trace, sometimes a large quantity. I came to consider that the great majority of these cases were ankylostomiasis." The reasons adduced for this conclusion may be summarised as follows: (1) The great amount of ankylostome infection present as gauged by stool examinations and by post-mortem findings; (2) most of the patients, though not all, improved

considerably under anthelmintic treatment. The arguments against a food deficiency disease (beri-beri) were: (1) The diet which the patients had been enjoying for some weeks was regarded as sufficient to make good any former deficiency; (2) neuritis was not a prominent symptom, though the complaint of pains in the limbs, especially at night, was very common.

When shown photographs of pellagrins Captain Stubbs stated that the appearances did not seem unfamiliar to him, though he would not like to lay too much stress on this point. He concludes his remarks as follows: "The outstanding fact in the East African native hospitals was this, the death-rate was high. For months in 1917 there were 8–25 deaths a day in 1000 bedded hospitals. Yet in the majority of these cases there was no dramatic illness to account for death, unless it might be a terminal broncho-pneumonia. The patients commonly had no raised temperature and no definite dysentery, just a chronic diarrhœa of perhaps three to four motions a day. They were usually very anæmic, and frequently had œdema of the feet. Their food did them no good; they became emaciated and died. We regarded the deaths as due to chronic dysentery and helminth infection, especially ankylostomiasis; often they were the subjects of chronic malaria as well. Post mortem frequently chronic ulceration of both bacillary and amœbic types were seen. Another feature was the presence of excess of fluid in the pericardium and pleural cavities, with which there was associated a remarkable smallness of the heart and kidneys."

*Factors in Causation.*

Having now described the diverse epidemics in which dropsy was the prominent symptom, there yet remains the task of elucidating, or at any rate correlating, the facts disclosed. I propose to discuss the various factors that have been mentioned from time to time as causing the above conditions.

1. *Malaria.*—Manson,[18] when discussing malarial cachexia, says: "As a consequence of defective nutrition from prolonged anæmia and recurring fever, the muscular tissue of the heart in chronic malaria may degenerate, the ventricles dilate, and in time the lower extremities become œdematous." Hulse[19] is of opinion that epidemic dropsy is nothing but malarial cachexia.

Against this view I advance the following arguments. Malaria was not mentioned by other observers as a causative factor, and yet the picture of malarial cachexia must have been an extremely common one to most, especially the workers in India. To my mind, it is inconceivable that this should have been overlooked, were it indeed present. It is not probable that the outbreaks of epidemic dropsy in German towns, for example, were due to such a factor. Again, not all the cases had anæmia, which is a constant in malarial cachexia. Moreover, I have notes of five cases of severe malaria anæmia who never showed any œdema whatever. I append their blood counts:—

| | | |
|---|---|---|
| Case 1: | Hb. 50 per cent.; | R.B.C., 1,500,000. |
| ,, 2: | Hb. 70 ,, | R.B.C., 2,800,000. |
| ,, 3: | Hb. 60 ,, | R.B.C., 1,500,000. |
| ,, 4: | Hb. 60 ,, | R.B.C., 1,400,000. |
| ,, 5: | Hb. 60 ,, | R.B.C., 1,700,000. |

Again, in my own series of cases it will be seen that of the 24 dropsy cases only 11 showed evidences of malaria, and out of 64 pellagrins only 9. It should be stated here that malaria was diagnosed in the fatal cases by the post-mortem appearances of the spleen and their clinical condition before death, while in the living the diagnosis depended upon blood examinations, presence of excess of large mononuclear cells, and from typical attacks of pyrexia, &c. In my opinion, therefore, some of the cases of œdema may have been due to malarial cachexia, but the majority were not.

2. *Dysentery.*—This condition is very much more difficult to exclude than malaria, for the reason of its extreme frequence in connexion with epidemic dropsy. As far as one can see in all the epidemics throughout the world gastro-intestinal symptoms of all grades of severity were almost constantly associated with the œdema.

In my own series of 24 dropsy cases 18 had dysentery, and of 64 pellagrins 33 showed evidence of the condition. The majority of them were of the bacillary type. In Manson's book on Tropical Medicine I can find no reference to œdema as a sequel of either type of dysentery, though Davidson[20] mentions dropsy of the legs as a result of the disease. It will be granted, I think, that this statement is not tantamount to saying that epidemic dropsy outbreaks are caused by dysentery, at most it is an association only. The reason of this coincidence can be explained in three possible ways: (1) Epidemic dropsy occurs frequently in those places where dysentery is also common; (2) both diseases are associated with periods of food stress, as, for example, during wars and famines; (3) if a man who has been starved, at any rate as regards certain articles of food, then develops dysentery, his system is immediately drained of most of its nourishment, and at the same time he is starved in hospital for therapeutic reasons. At first he was only a candidate for one of the food deficiency diseases; now he is fully qualified. That epidemic dropsy and dysentery are associated cannot be denied, but that the latter is the cause of the former is not proven.

3. *Scurvy.*—Except in ship beri-beri this disease appears to be a rare event in epidemic dropsy. In the Cairo cases I have notes of two prisoners who had bleeding gums, but it is doubtful whether they were really suffering from scurvy at all. In any case neither of them showed any œdema. It is only fair to state, however, that the late Colonel F. M. Sandwith, when he came to visit the Prisoners of War Hospital in Cairo, was of the opinion that the œdema was scorbutic in origin. With every respect to the memory of this great worker I must say that I could find no evidence whatever for his statement.

4. *Ankylostomiasis.*—It is evident that Captain Stubbs, in his observations on the East African outbreak, is of the opinion that his cases of epidemic dropsy had ankylostome infection as an ætiological factor. Possibly in his cases this was true, but in the majority of outbreaks no mention of intestinal parasites is made. In my own cases not one showed evidence of ankylostomiasis, though the worms in post-mortem cases and the ova in the stools of the living were searched for repeatedly with every care. The absence of eosinophilia in these cases also is against such an infection. I think it may be truly said that in the vast majority of cases ankylostomiasis is not the cause of epidemic dropsy.

5. *Beri-beri.*—Without doubt throughout the world, even by experienced observers, the diagnosis of beri-beri has been confused with that of epidemic dropsy. The class of person commonly

attacked and the associated œdema are facts which apparently lead many into the trap. In my opinion, the absence of true neuritis and the comparative rarity of heart attacks in epidemic dropsy should point to a true diagnosis. That the two diseases are related may be allowed, but that they are separate clinical entities, so far as our present knowledge goes, is practically certain.

6. *Epidemic dropsy a food-deficiency disease.*—There yet remains the discussion as to whether epidemic dropsy is not, after all, a food-deficiency disease. Before dealing with this section I should like to make it quite clear that I regard all the above-described epidemics as similar in constitution and origin. Of so much there can be no doubt. When we consider the œdema, and the absence of renal or cardiac causes to explain it; when we notice the absence of neuritis, the presence of diarrhœa, emaciation, anæmia, and relative lymphocytosis; when we find the curious wasting of all the organs post mortem and try to explain the seemingly causeless deaths, we must be struck by the fact that we are here dealing with a definite clinical entity. As in clinical signs and symptoms so in outward circumstances do we notice the same similarity. Whenever there are wars, famines, and long voyages in ill-equipped ships; wherever persons are housed together under relatively bad conditions, as in asylums and prisons; wherever the population lives on a minimal or one-sided dietary liable at times to be reduced to a fraction above nothing, there we have the conditions for the development of food-deficiency diseases and there we have epidemic dropsy.

*Epidemic dropsy and pellagra.*—Two matters alone remain for discussion. Firstly the relation between epidemic dropsy and pellagra. To the best of my knowledge, in none of the epidemics of pellagra was œdema mentioned as a symptom of the disease. In Italy pellagra has decreased to a remarkable extent, while epidemic dropsy has made its appearance. Among Turkish prisoners of war in Egypt the pellagra epidemic was preceded by the epidemic of œdema, and even the pellagrins themselves in many cases showed dropsical symptoms. The presence of skin eruptions in some cases of war œdema in Europe is of great interest in this connexion. When I examined the Armenian refugees at Port Said, many months after the pellagra outbreak there had ceased, I was unable to find any "relics" of the disease at all until I happened upon a girl with marked œdema of the legs; on looking up the records I found that she had had pellagra in the last outbreak. Frequently, while in Egypt, I said to myself, "Europe will be full of pellagra." As a matter of fact, it was full of war œdema.

### *The Mechanism of Œdema Production.*

The second matter requiring attention is the exact mechanism of œdema production in these cases. I mention three possible explanations. 1. In cases that die of epidemic dropsy there is found marked wasting of all the organs, even of the heart. The individual in such cases must have been living on his own body protein. It is suggested that toxic products of albuminoid metabolism damage the endothelial linings of the vessels, thus giving rise to œdema. 2. That the œdema is due to a deficiency in calcium salts. 3. Recently much attention has been directed to the effects of starvation on the ductless glands or endocrine organs. The Committee of Inquiry into Pellagra among Turkish Prisoners of War in Egypt[21] advanced the theory that many of the symptoms of pellagra are due to adrenal insufficiency. The close similarity between this and Addison's disease is certainly evidence in favour of the theory. More recently most interesting work has been done by McCarrison[22] on the pathogenesis of deficiency disease. By starving birds and also by feeding them on vitamine-free diets he found a similar result—viz., that all the endocrine organs atrophied except two: the pituitary remained the normal size, while the suprarenals were markedly hypertrophied. Some of the birds showed symptoms closely resembling those of war œdema. McCarrison states that "œdema has invariably (100 per cent.) been associated with great hypertrophy of the adrenal glands; 86 per cent. of all cases having great hypertrophy of these organs had œdema in some form." Again, "the œdema of inanition and of beri-beri is believed to be initiated by the increased intracapillary pressure which results from the increased production of adrenalin, acting in association with malnutrition of the tissues." In passing it is interesting to note that "œdema of the auriculo-ventricular junction" was found in these cases. This may be a possible explanation of the bradycardia in some of the war œdema cases.

It is conceivable, therefore, from the above considerations that epidemic dropsy is a condition due to affection of the suprarenal glands as a result of inanition arising from starvation, complete or partial. It may be that the suprarenals hypertrophy at the expense of the other endocrine organs, and by their increased function give rise to dropsy. Possibly, also, this hyperactivity may in time give place to a suprarenal insufficiency as exophthalmic goitre gives place to myxœdema. This second condition may be pellagra.

Whatever the true explanation may be, it is extremely probable that food deficiency, together with disordered function of certain endocrine organs, play a large part in the causation of epidemic dropsy and pellagra.

In conclusion, I must thank Lieutenant-Colonel P. S. Vickerman, late O.C. No. 2 Prisoners of War Hospital, Cairo, for his unfailing kindness and assistance in the making of these observations.

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THE LATE MR. J. S. TURNER.—John Sidney Turner, J.P. for the County of Kent and for many years chairman of the Kennell Club, died on Jan. 16th at the age of 76. He received his medical education at Guy's Hospital, and qualified by taking the M.R.C.S. Eng. and the L.S.A. in 1864. After holding a house appointment at Guy's he subsequently became prosector of anatomy at the Royal College of Surgeons of England, afterwards becoming consulting surgeon to the Norwood Cottage Hospital. He was a Fellow of the Linnean Society, a member of Council of the Lister Institute of Preventive Medicine, and a Fellow of the Royal Society of Medicine. Mr. Turner, who was editor of the "Kennel Encyclopædia," was well-known in dog-breeding circles as judge, referee, and exhibitor

# THE TREATMENT OF CHRONIC GONORRHŒAL RHEUMATISM BY VACCINES GIVEN INTRAVENOUSLY.

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UP to the present the accepted view has been that a vaccine is of use in only one disease. In 1915 Sir Almroth Wright,[1] the greatest pioneer of specific therapy, said:—

All of those who have had experience with vaccines will have seen cases where therapeutic effects, lying quite outside the range of the particular vaccine employed, and therefore, as we thought, not quite creditable to science, have been obtained with vaccine therapy.

In March of this year, going much further, he says[2]:—

I confess to having shared the conviction that immunisation was always specific. ..... Presumptive evidence of collateral immunisation began gradually to filter into our minds. ..... Hints are conveyed to us that there may exist a useful sphere of application for collateral immunisation; and that such sphere may, perhaps, be found in those cases where the infection is of very long standing. ..... We should discard the confident dogmatic belief that immunisation must be strictly specific. ..... We should proceed on the principle instead that the best vaccine to employ will always be the vaccine which gives on trial the best immunising response against the microbe we propose to combat.

It is well known that when a patient suffers from two pyrexial diseases, such as measles and scarlet fever, at the same time, his symptoms are not a summation of the two unless we suppose each disease to be exhibiting only half its average degree of severity. Again, an existing disease may be modified by an intercurrent malady. For instance, on several occasions we noticed in the gonorrhœal patients in a military hospital that a relapse of malaria, with a hyperpyrexia and the parasites demonstrable in the blood, dried up the urethral discharge very quickly—much faster than ordinary treatment measures. Usually the discharge reappeared shortly after the subsidence of the fever, but Culver[3] has described a case of acute gonococcal urethritis which was cured spontaneously by a malarial relapse lasting four days.

During the influenza epidemic last winter some of our cases of chronic gonorrhœal arthritis became victims. These cases had been bedridden for months, and were showing no response to treatment, in spite of the fact that all the most hopeful lines had been tried on them. We noticed that during and for some time after the influenzal pyrexia there was a marked lessening of the arthritic pains in these patients, and some freedom of movement in the affected joints resulted. It is fairly well known in India that the more elderly natives submit to plague inoculation not from dread of plague nor faith in the vaccine, but because experience has taught them that it eases their rheumatism.

### *Artificial Rise of Temperature as a Means of Combating Infection.*

Consideration of these facts led us to think that a rise of temperature must help the tissues considerably in counteracting germs and their toxins. Rolly and Meltzer,[4] Lüdke,[5] and numerous other workers found that a temperature of 104°–107° F., artificially produced, had a favourable influence on an established infection. Heated animals were more resistant to injections of bacteria, and agglutinins and bacteriolytic substances were produced more abundantly in animals which were kept overheated. The heat may damage the infecting organism or it may cause a more rapid and firm union of antigen and immune body.

Petersen and Jobling,[6] using experimental animals, injected intravenously such substances as bacteria, kaolin, protein-split products and trypsin, and found that, almost invariably, the injections were followed by an increase of serum, protease, and lipase. They found similar reactions in patients after intravenous injections of vaccines and of proteoses, though to a lesser degree and with less regularity than in animals. They observed improvement in cases of established infection following such injections, and suggested that the ferments might digest the microbes and their toxins. They also found that the injections caused a transient decrease of antiferments in the blood (perhaps due to the greater metabolic demands in pyrexia), followed by a distinct and much more lasting increase. Certain conditions of low "infection index," such as cancer, pregnancy, and after vaccine treatment, also show a relatively high "antiferment index."

In the following cases we gave the vaccines intravenously. A quick reaction marked by a rise in temperature was the result, but there was no marked change in the pulse-rate, nor was there any other untoward symptom. According to Wright, vaccine injections are followed by a negative phase, at least as far as the opsonic power is concerned. Bull,[7] on the other hand, found that intravenous injections of typhoid vaccine in immunised rabbits caused only rapid increase of antibodies. Dunklin,[8] working with Jobling, found the same increase after intravenous injections of proteoses.

We think that giving the injections intravenously secures a greater protection and that almost at once. The mechanism would seem to consist of a selective stimulation of the hæmopoietic system by non-specific bodies. Probably no single factor is responsible for all the changes that occur, but the intravenous injection upsets the balance of the serum constituents, and the series of changes thus caused establishes a condition favourable to recovery from infection.

The vaccines we used had been stored for some months after their preparation, and they were, therefore, probably more or less detoxicated.

Whether a detoxicated vaccine has any specific properties or not requires proof. We strongly suspect that a vaccine minus its endotoxin consists simply of non-specific proteose in a colloidal form. Clinically we seem to get the same results from injections of T.A.B. vaccine as from a gonococcus or mixed vaccine. Our chief reason for using a gonococcus vaccine was that a supply was available, and its use afforded a greater facility for graduating dosage. Freshly prepared typhoid vaccine often causes so severe a reaction when given subcutaneously that we would not risk giving it intravenously. Probably the best vaccines to use would be vaccines detoxicated as described by Thomson,[9] but these were not available at the time. Injections of endotoxins always produce toxic symptoms with but little or no increase of antibodies.[10]

### *Record of Cases.*

**The four cases recorded below are typical of a series of 15 which were treated in the same way.**

CASE 1.—A. B., age 29, had a history of gonorrhœa at the age of 22. On admission he showed a slight urethral discharge, chiefly mucus. There were present numerous pus cells and scanty gonococci. Both knee-joints were very much inflamed, swollen, painful, and full of fluid. Both shoulder-joints were similarly affected and both hip-joints. His general condition was very poor indeed, he had been bedridden for six months, and he was very thin and emaciated. He could not move either arm or leg, and therefore could not get up to irrigate. The urethral condition was treated locally, both urine glasses showing considerable muco-pus. His prostate was massaged weekly. Table I. is an account of the treatment he received for his rheumatism, and the progress he made:—

TABLE I.

| Day. | Vaccine. | Time administered and max. pulse. | Time and degrees of max. temp. | Temp. again normal. | Progress. |
|---|---|---|---|---|---|
| 1 | 25 mill. GC. | 10 A.M. 92 | 4 P.M. 100·4 | 6 A.M. | Nil. |
| 4 | 35 mill. GC. | 10 A.M. 94 | 4 P.M. 103 | 9 ,, | Both hip-joints less painful. |
| 9 | 1 c.c. T.A.B. | 10 A.M. 92 | 4.30 P.M. 102 | 9 ,, | Swelling right knee reduced. |
| 13 | 100 mill. GC. | 10.30 A.M. 96 | 5.10 P.M. 103·2 | 9 ,, | Slight movement right knee. |
| 17 | 200 mill. GC. 2000 mill. Diph. | 10 A.M. 100 | 4.30 P.M. 104·8 | 6 ,, | Marked improvement; some movement possible in both knees. |
| 21 | 1½ c.c. T.A.B. | 10.30 A.M. 86 | 4.30 P.M. 104 | 6 ,, | Movement possible in shoulders. |
| 26 | 400 mill. GC. 4000 mill. Staph. | 10 A.M. 84 | 4 P.M. 103·6 | ,, | Swelling subsiding. |
| 31 | 2 c.c. T.A.B. | 10 A.M. 86 | 7 P.M. 103·2 | 10 ,, | All joints improved. |
| 35 | 600 mill. GC. 6000 mill. Diph. | 9.30 A.M. 80 | 3 P.M. 102·6 | 6 ,, | Patient able to get up in invalid chair. |
| 39 | 800 mill. GC. 8000 mill. Diph. | 10 A.M. 80 | 5 P.M. 104·4 | 9 ,, | Can walk length of ward with cane. |
| 43 | 2 c.c. T.A.B. | 10 A.M. 80 | 8 P.M. 103·6 | 9 ,, | General condition very much improved; appetite returning. |
| 47 | 1000 mill. GC. 10,000 mill. Staph. | Noon 76 | 8 P.M. 103·2 | 9 ,, | Showing steady improvement; gaining ground daily. |
| 52 | 1200 mill. GC. 12,000 mill. Diph. | 10 A.M. 78 | 4 P.M. 102·8 | 6 ,, | Can walk with comfort with a cane. |
| 57 | 2 c.c. T.A.B. | Noon 72 | 4 P.M. 100 | 6 ,, | Can occasionally discard cane; other joints practically well. |
| 60 | 1400 mill. GC. 14,000 mill. Staph. | 10.30 A.M. 72 | 5 P.M. 103 | 6 ,, | Has walked one mile. |

General condition is now excellent. Movements in all joints are good and the patient can walk twice round the grounds without a cane. He was recommended three weeks in the country and thence to duty.

CASE 2.—C. D., age 28, had had three attacks of gonorrhœa. On admission he had a purulent urethral discharge, gonococci present in large numbers, pus in both urine glasses, and a very marked synovitis of left ankle. After being three months in hospital, during which time his urethral condition got well and his arthritis got worse, he came under our care. Both ankles were now involved, there being marked swelling and tenderness and considerable fluid present. The left ankle was larger than the right. He was on fish diet; his appetite was poor and his general condition wretched. He was very depressed and had very little interest in his surroundings. His pulse-rate ran from 90 to 100. His subsequent treatment and progress is set out in Table II.

This patient eventually turned out for physical training under the hospital P.T. Sergeant-Major, could walk two miles without a cane, and was discharged to duty 72 days after his first intravenous injection.

TABLE II.

| Day. | Vaccine. | Time administered and max. pulse. | Time and degrees of max. temp. | Temp. again normal. | Progress. |
|---|---|---|---|---|---|
| 1 | ½ c.c. T.A.B. | 10 A.M. 100 | 10 P.M. 106·2 | Noon next day. | Can tolerate no movement whatever. |
| 7 | ½ c.c. T.A.B. | 10.30 A.M. 104 | 11.30 P.M. 104·4 | Noon next day. | No change. |
| 11 | 1 c.c. T.A.B. | 10 A.M. 102 | 10 P.M. 103·8 | 9 A.M. | Can tolerate slight movement. |
| 16 | 100 mill. GC. 1000 mill. Diph. | 10 A.M. 100 | 11.30 P.M. 105·6 | Noon next day. | Swelling left ankle reduced. |
| 20 | 1½ c.c. T.A.B. | 11.30 A.M. 92 | 1 A.M. 103·8 | 9 A.M. | Pain left ankle subsiding. |
| 25 | 200 mill. GC. 2000 mill. Diph. | 10 A.M. 86 | 10.30 P.M. 104·6 | 9 ,, | Both ankles much improved. |
| 30 | 400 mill. GC. 4000 mill. Staph. | 10 A.M. 80 | 11.30 P.M. 104·6 | 6 ,, | Some movement now possible. |
| 34 | 2 c.c. T.A.B. | 9.30 A.M. 78 | 10 P.M. 103·8 | 6 ,, | Movements freer. |
| 38 | 600 mill. GC 6000 mill. Staph. | 10 A.M. 78 | 10 P.M. 102·6 | 6 ,, | Improvement now steady. To get up. |
| 43 | 800 mill. GC. 8000 mill. Staph. | 10 A.M. 72 | 10.30 P.M. 104·6 | 6 ,, | Pain in left ankle gone. |
| 48 | 1200 mill. GC. 12,000 mill. Staph. | 10 A.M. 72 | 10 P.M. 101·4 | 6 ,, | Walking about ward with cane. |
| 53 | 1600 mill. GC. 16,000 mill. Diph. | 10 A.M. 74 | 8 P.M. 102·8 | 6 ,, | Has walked 100 yards with cane. |
| 58 | 2000 mill. GC. 20,000 mill. Diph. | 10 A.M. 72 | 8 P.M. 102·2 | 6 ,, | Has walked 300 yards with cane. |

TABLE III.

| Day. | Vaccine. | Time administered and max. pulse. | Time and degrees of max. temp. | Temp. again normal. | Progress. |
|---|---|---|---|---|---|
| 1 | 50 mill. GC. | 10.30 A.M. 100 | 5 P.M. 103·8 | 9 A.M. | Nil. |
| 5 | 100 mill. GC. 1000 mill. Diph. | 10.30 A.M. 100 | 5.30 P.M. 104·6 | 9 ,, | Slight movement possible. |
| 9 | 200 mill. GC. 2000 mill. Staph. | 10.30 A.M. 102 | 5.30 P.M. 101·8 | 9 ,, | No change. |
| 13 | ½ c.c. T.A.B. | 10.30 A.M. 98 | 6 P.M. 103·2 | 6 ,, | Swelling of knees subsiding. |
| 17 | 400 mill. GC. 4000 mill. Diph. | 10.30 A.M. 96 | 8.30 P.M. 105·4 | 9 ,, | All joints subsiding. |
| 21 | 800 mill. GC. | 10 A.M. 90 | 7.30 P.M. 104·8 | 9 ,, | To sit up in bed. |
| 25 | 1 c.c. T.A.B. | 10 A.M. 86 | 10 P.M. 103·2 | 9 ,, | To get up in invalid chair. |
| 29 | 1000 mill. GC. 10,000 mill. Staph. | 10.30 A.M. 82 | 6.30 P.M. 104·4 | 6 ,, | General condition much improved. |
| 33 | 1½ c.c. T.A.B. | 10 A.M. 74 | 8.30 P.M. 103·2 | 6 ,, | Now no pain in joints. |
| 38 | 1400 mill. GC. 14,000 mill. Staph. | 10 A.M. 80 | 5 P.M. 104·4 | 6 ,, | Walking about ward with cane. |
| 43 | 2 c.c. T.A.B. | 10.30 A.M. 72 | 5 P.M. 103 | 6 ,, | Out of doors; occasionally discards cane. |
| 49 | 1800 mill. GC. 18,000 mill. Staph. | 10.30 A.M. 76 | 5 P.M. 103·8 | 6 ,, | Walking without cane. Last joint to clear up entirely was the right thumb-joint. |

CASE 3.—E. F., age 26, had had two attacks of gonorrhœa, the first at the age of 20. His urethral condition had cleared up. He had been confined to bed for three months when he came under our care. At that time he was in a wretched condition, worn to a shadow, tongue heavily coated, marked anorexia, and badly constipated. His arthritis included the right shoulder, right wrist and thumb, left wrist, both knees, and both great toes. Each joint showed considerable swelling, redness, pain, and tenderness. Fifty-two days after his initial intravenous vaccine he was discharged from hospital. He was then comparatively well-nourished, had good movements in all joints, and had done over one week of physical training under the hospital P.T. Sergeant-Major. His vaccine treatment was as shown in Table III.

CASE 4.—G. H., age 27, had had three attacks of gonorrhœa. He had been bedridden for five months, and had received gonococcal vaccines (stock) subcutaneously during that period with little or no improvement. He was very much emaciated, in spite of extras in his diet, cod-liver oil, cream, daily massage, and so on. He could not sit up in bed, and he had to be spoon-fed by an R.A.M.C. orderly. There was marked wasting of the muscles of the thighs and calves, and of the left forearm. The joints involved were the metacarpo-phalangeal joints of the right hand, the left elbow, both knees, and the right ankle. Progress at first was very slow and often disheartening, but eventually he began to pick up, the joints improved in a wonderful manner, and once out in an invalid chair he made very rapid progress. During the whole of his vaccine treatment his bed was moved out on the balcony and remained there day and night. Every effort was made to induce him to eat and take a general interest in things. The muscles of both legs and left arm were massaged daily. His vaccine treatment and progress are detailed in Table IV.

TABLE IV.

| Day. | Vaccine. | Time administered and max. pulse. | Time and degrees of max. temp. | Temp. again normal. | Progress. |
|---|---|---|---|---|---|
| 1 | ½ c.c. T.A.B. | 12 noon. 120 | 10 P.M. 103·4 | 9 A.M. | Nil. |
| 5 | ½ c.c. T.A.B. | ,, 124 | 10 P.M. 103·2 | 9 ,, | ,, |
| 9 | ½ c.c. T.A.B. | ,, 120 | 10 P.M. 101·8 | 11 ,, | Severe headache. |
| 13 | 25 mill. GC. | ,, 114 | 10 P.M. 104·2 | 10 ,, | Seems brighter. |
| 17 | 50 mill. GC. | ,, 112 | 8 P.M. 104 | 9 ,, | No change. |
| 21 | 100 mill. GC. | ,, 120 | 10 P.M. 103·6 | 11 ,, | ,, |
| 25 | 1 c.c. T.A.B. | ,, 110 | 8 P.M. 104·6 | 8 P.M. | Swelling right elbow subsiding. |
| 30 | 200 mill. GC.<br>2000 mill. Staph. | ,, 104 | 11 P.M. 105·8 | 10 A.M. | Appreciable movement right elbow. |
| 35 | 300 mill. GC.<br>3000 mill. Diph. | 10 A.M. 100 | 6 P.M. 103·8 | 9 ,, | No change. |
| 39 | 400 mill. GC.<br>4000 mill. Diph. | 9.30 A.M. 100 | — 98·4 | — | ,, |
| 43 | 800 mill. GC.<br>8000 mill. Diph. | 9.30 A.M. 98 | 7.30 P.M. 104·8 | 6 A.M. | Able to sit up in bed. |
| 48 | 1000 mill. GC.<br>10,000 mill. Diph. | 10 A.M. 90 | 4 P.M. 102·6 | 6 ,, | Both knees tolerate movement. Some active movements in right elbow. Remarkable advance in his general condition. |
| 52 | 1½ c.c. T.A.B. | Noon 92 | 8 P.M. 103·8 | 6 ,, | To get up in invalid chair. |
| 58 | 1200 mill. GC.<br>12,000 mill. Diph. | 10.30 A.M. 86 | 11 P.M. 104 | 6 ,, | Can stand up with two canes. |
| 63 | 1600 mill. GC.<br>16,000 mill. Diph. (old stock). | 9.30 A.M. 78 | — 98·4 | — | No reaction. |
| 68 | 1800 mill. GC.<br>18,000 mill. Diph. (old stock). | 9.30 A.M. 72 | 6 P.M. 102·8 | 6 A.M. | Can walk a few yards with two canes. |
| 73 | 2 c.c. T.A.B. | 10 A.M. 74 | 6 P.M. 104·8 | 6 ,, | No pain in any one joint. |
| 78 | 1400 mill. GC.<br>14,000 mill. Staph. | 10 A.M. 72 | 6 P.M. 104·4 | 6 ,, | Moving about ward with two canes. |
| 82 | 1600 mill. GC.<br>16,000 mill. Staph. | 10 A.M. 72 | 6 P.M. 103·8 | 6 ,, | Occasionally discards one cane. |
| 87 | 1800 mill. GC.<br>18,000 mill. Staph. | 9.30 A.M. 72 | 6.30 P.M. 104 | 6 ,, | Grip of right hand quite good. Free movements left elbow. |
| 92 | 2000 mill. GC.<br>20,000 mill. Staph. | Noon 76 | 6 P.M. 104·8 | 6 ,, | Now walking about grounds with one cane. General condition is extremely good. All joints are practically normal. |

*Conclusion.*

The following we consider the most noteworthy points:—

1. The marked improvement in all cases.
2. That no benefit seemed to result from an injection that was not followed by pyrexia.
3. Though the temperature rose there was no change of any importance in the pulse-rate nor any other untoward symptom. At the time treatment was commenced the patients were extremely debilitated with a rather fast and weak pulse, which was easily accelerated.
4. The injections were all intravenous.
5. There was no appearance of a clinical negative phase.
6. The vaccines we used were not freshly prepared. As a result of storing, probably the toxins contained had broken down more or less.
7. The injection of these, possibly, non-specific germ constituents would seem to have caused the production of specific antibodies.
8. The size of the doses used. These compare favourably with the doses recommended by Thomson for his detoxicated vaccines. The doses of pus vaccines used by Pineo and Baillie[11] seldom exceed 72 million given subcutaneously and never exceed 150 million. The largest dose of gonococci used by us was 2000 million.

We are indebted to Lieutenant-Colonel Wm. Robertson and Lieutenant-Colonel E. B. Booth, D.S.O., for facilities in compiling and using records of this series.

*References.*—1. Wright, A. E.: Brit. Med. Jour., 1915, i., 625. 2. Wright, A. E.: THE LANCET, 1919, i., 489. 3. Culver, H. B.: Unpublished address before Chicago Institute of Medicine, Nov. 7th, 1916. 4. Fr. Rolly and Meltzer: Deutsch. Arch. f. klin. Med., 1908, xciv., 335. 5. Lüdke, H.: Ergebn. d. inn. Med. u. Kinderh., 1909, iv., 493. 6. Jobling, J. W., and Petersen, W.: Jour. Exper. Med., 1914, xvi., 321; 1915, xxii., 500, 597, 603, 141. 7. Bull, C.: Jour. Exper. Med., 1916, xxiii., 419. 8. Jobling, J. W.: Arch. Int. Med., 1917, v. xix., p. 1042. 9. Thomson, D.: THE LANCET, 1919, i., 1102. 10. Wells: Wells' Chemical Pathology (1918), W. B. Saunders Co. 11. Pineo, E. G. D., and Baillie, D. M.: THE LANCET, 1919, i., 508.

THE LATE MR. ERNEST SAXTON.—Ernest Saxton, L.R.C.P. & S. Edin., L.R.F.P.S. Glasg. died suddenly on the evening of Jan. 13th at his home at Didsbury. It was known that he was not in good health, but such a sudden end was not anticipated, and he was at work in his surgery when a fatal heart seizure occurred. An Edinburgh student, qualified in 1901, at one time he practised at Trentham, Stafford, having a district union appointment and public vaccinatorship in the Stoke union, and acting as honorary physician to the Hanchurch Convalescent Home for Children. He came to Manchester some ten years ago to take up the practice of the late Dr. J. M. Rhodes, and has since worked in the Didsbury district, except for the time he was abroad on war service in the East. He leaves a widow and one son, with whom great sympathy is felt in their sudden loss.

# A NEW PYLORUS.

## POSTERIOR GASTRO-JEJUNOSTOMY WITH JEJUNO-JEJUNOSTOMY AS A ROUTINE OPERATION IN ALL CASES OF PYLORIC OBSTRUCTION—DUODENAL OR PYLORIC OR CHRONIC GASTRIC ULCER.

BY G. GORE GILLON, F.R.C.S. EDIN.,

CONSULTING SURGEON, AUCKLAND HOSPITAL; LATE LIEUTENANT-COLONEL ATTACHED R.A.M.C., AND SURGEON, LONDON MILITARY HOSPITAL.

I WROTE a paper on this subject in 1913, describing a series of operations for duodenal ulcer and read it before the Australasian Medical Congress held at Auckland early in 1914. Since then, in 1915, I published a short paper on the subject in the *British Medical Journal*, with a diagram.

### *History of the Operation.*

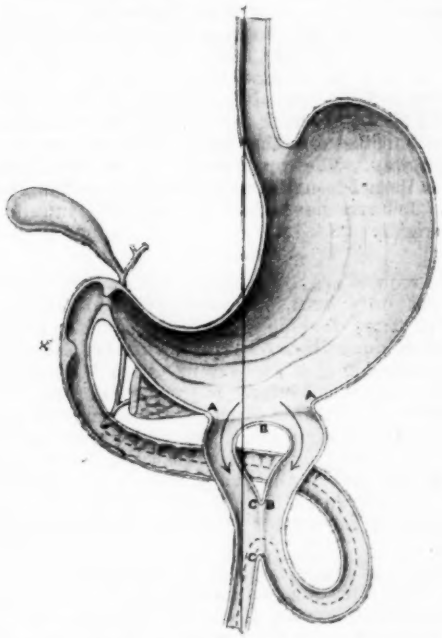
The history of this operation may be stated briefly. Braun, Weir, and Jaboulay performed a jejuno-jejunostomy over 20 years ago, but *only* when combined with an *anterior* gastro-jejunostomy.[1] Jaboulay published his paper in 1894 and Weir in 1898.[2] Jejuno-jejunostomy was done occasionally, as Sir Berkeley Moynihan has informed me, after these dates in England—as an addition to the posterior operation when a very long loop had been left. But this method quite went out of fashion as there were alleged against its use: (1) the occasional occurrence of a jejunal ulcer afterwards, and (2) the length of time involved in its performance. The "long loop" operation in the early days probably failed either because the loop was *too long* and so got kinked, or because the technique at that time was faulty and a certain number of cases of jejunal ulcer were reported as having followed as a sequel. The time for the double operation should never exceed 1 hour 20 minutes nowadays, allowing a few minutes for change of gloves for the second anastomosis. Thus this long loop operation was practically discarded 15 years ago, and surgeons all over the world have done the present operation of "no loop" posterior gastro-jejunostomy. This operation was and is undoubtedly a "cure" for cases of pyloric obstruction and duodenal and pyloric ulcer, and certainly the ulcer does heal and the obstruction is overcome. But there was much dissatisfaction as regards the results of the operation as time went on, many patients complaining of various uncomfortable sensations in the abdomen, and very many of them being in feeble health and unable to take hard exercise.

### *A New Pylorus.*

When one sets about altering the mechanism of the alimentary tract—altering nature's plan—it surely behoves him to do so in a manner that shall produce no secondary disability. We must remember that the patient has presumably a long time to live with the modifications which the surgeon has effected. When we want to do away with the use of the old pyloric gateway we must make certain that the new gateway is situated at the *lower* end of the stomach (see figure), and by a jejuno-jejunostomy, some 3½ in. away from the new pylorus, we can make sure that the food stream does not mingle with the bile and pancreatic fluids till the bowel is reached. By a jejuno-jejunostomy the duodenum gets a perpetual rest and the descending jejunal double tube takes the functional place of the first segment of the duodenum.

The accompanying figure shows Mr. Gillon's modified operation for short-circuiting the gastric contents.

I hold that the present-day "no loop" operation is physiologically incomplete; the bile and pancreatic fluids find their way into the stomach, and the long series of complaints noted by physicians are entirely and wholly due to this unnatural result of the




Diagrammatic representation of author's operation of posterior gastro-jejunostomy with jejuno-jejunostomy. Distance A to C = 3½ in.; A to A = 3 in.; B to B = 2½ in.; C to C' = 1½ in. X = ulcer. The dotted line shows the course of the bile and pancreatic fluid.

conventional operation. These 3½ in. of jejunum shown in the figure functioning as the first 3½ in. of duodenum make all the difference in the world to the unfortunate sufferer. Digestion goes on naturally; he is never troubled with hyperacidity, and jejunal ulcers simply do not occur.

### *The Operation Described.*

To prevent misconception I shall describe shortly my operation. After opening the abdomen and exposing the part of the stomach I require I put in my right hand and bring up from the left of the spine 10 in. of jejunum, counting from the duodeno-jejunal junction, immediately at the left of the second lumbar vertebra; 3 in. of this proximal loop are used to make the first anastomosis, leaving 7 in. for the second anastomosis. The gastro-jejunostomy opening is made 3 in. in length (see A to A in figure). My assistant and I now change our gloves and then make the anastomosis between the two descending legs of the jejunum at a distance of 3½ in. below the stomach opening (B to B in figure). The anastomotic opening itself should measure 1½ in. vertically (C to C'). The gastrocolic omentum is attached to the jejunum near the stomach by two stitches, and any veins in the omentum tied. I use fine silk or linen thread. The abdomen is then sewn up in the usual way. The vertical black line in the figure shows the

[1] Vide Archiv f. Klinische Chir., 1823, xlv., pp. 3614 (Braun).
[2] Med. Record, 1898, vol. liii., p. 541.

position of the spine. A to A indicates the new pylorus, the arrows point out the direction of the food stream. The dotted line along the duodenum from Vater's ampulla to the jejunal opening, c to c', shows the course of the secretions from the pancreas and liver to join the food stream issuing from the stomach.

The patient can lie in a recumbent position a few hours after the operation, and need not be propped up, hence there is less strain on the abdominal stitches. He is fed with tablespoonfuls of water for a day, and then peptonised milk in the usual way for a few days, and in eight days is taking a fair amount of light food. On the twelfth day he gets 2 or 3 gr. calomel; prior to that his bowels are opened by rectal injections if required. He should lie on his back for the first three weeks, and leave hospital on the twenty-fourth or twenty-eighth day. The operation has never taken me longer than 1 hour 15 minutes in an uncomplicated case. I have never had a case of jejunal ulcer afterwards.

*Results.*

The results are uniformly good, and the patients are not only well, but very well. They put on weight. They develop a great capacity for swallowing large quantities of liquids without discomfort. I may mention that three of my cases—two men and one woman—undertook a journey of some 1200 miles by sea within a few months after the operation, and although all three had previously been great sufferers from sea-sickness, yet they reported to me afterwards that they were not seasick and enjoyed their meals heartily all through the voyage, although it was winter time and the sea was very rough.

*Notes of a case done a year ago.*—Mr. ——, aged 30, height 5 ft. 10½ in., was operated on by me at St. Thomas's Nursing Home on Dec. 1st. 1918. He was admitted to the hospital on Nov. 16th, 1918, suffering from profound anæmia due to loss of blood for the past 12 years from a duodenal ulcer. He was so pale and bloodless that he had to be kept 15 days on special diet and have intravenous saline injections before he was fit for operation. His weight then was 8½ st. The operation, in which Mr. O. H. Hyman assisted me, took exactly 1 hour and 15 minutes. Three weeks after the operation the patient left the hospital, and in six months' time he had put on over 1½ st. in weight. He went back to work in April, 1919, and has been at work ever since, and has not the slightest sign of indigestion or any pain or inconvenience of any kind; his cheeks are a healthy red colour.

With regard to my experience of this operation I may say that during the last nine years I have carried it out in the way I have described in every case—as a routine practice. So convinced am I of its excellence that I adopt it in cases of perforation, either at the same sitting, or, where the patient was too weak, by opening the abdomen again in four weeks' time, and leaving meanwhile a good 7-in. loop of proximal jejunum for me to find when I make the second anastomosis.

Wimpole-street, W.

THE LATE DR. E. L. DUNN.—Edwin Lindsay Dunn, medical superintendent of the Berkshire County Asylum, who died at Wallingford on Jan. 12th, was an exhibitioner of Trinity College, Dublin, graduating in 1887 as B.A., M.B., B.Ch. He had held resident posts at the Liverpool Dispensary and the Liverpool Infirmary for Children before becoming assistant medical officer at the Wakefield Asylum, from which he went on to Wallingford.

# Clinical Notes:

## MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

### A CASE OF
### MEDIASTINAL TUMOUR ASSOCIATED WITH ACUTE LEUKÆMIA.

BY C. RHODES HARRISON, M.B., B.S. LOND.,
CAPTAIN, R.A.M.C. (T.F.);
AND
D. MCKELVEY, *M.C.*, M.R.C.S.,
CAPTAIN, R.A.M.C.
*(From the Pathological Department, 3rd London General Hospital.)*

THE association of mediastinal tumours of malignant appearance with the presence in the blood of enormous numbers of large mononuclear cells is of sufficient rarity to warrant the following brief note.

Corporal ——, aged 29 years, served continuously from August, 1914, and was quite healthy until April, 1919. He went sick to a C.C.S. in Belgium on May 31st, 1919, with history of pain and discomfort in the epigastrium shortly after food and occasional vomiting, which had been going on for about six weeks. Temperature was normal during the day, but rose to 99° F. in the evening. On June 20th he developed sudden swelling of the left arm due to thrombosis. On the 27th he came under our notice. He then complained of pain in the epigastrium, which became worse at night, but did not seem to have any definite relation to food. Examination of the abdomen revealed nothing except slight tenderness below the ensiform cartilage. As to the respiratory system, there were no subjective symptoms, but percussion revealed an area of intense dullness in the middle line, from the clavicle to the heart, and liver dullness, extending 2 inches to the right and 1 inch to the left of the sternum. No dullness could be made out posteriorly. X ray examination showed an opaque mass, which did not pulsate and did not move with respiration, behind the sternum, conforming with this area. The spleen and lymphatic glands were not enlarged.

A blood count showed: Red cells, 5,600,000 per c.mm.; total leucocytes, 86,000 per c.mm. The films showed among the leucocytes an enormous preponderance of cells, 10 to 15μ, having a single large pale-staining nucleus, round, oval, or indented. The oxidase reaction was not tried, but they appeared to be non-granular myelocytes. The differential count showed: Polymorph. neutrophils, 3 per cent.; polymorph. eosinophils, 0·5 per cent.; large mononuclear cells, 96·0 per cent.; neutrophil myelocytes, 0·5 per cent. Small lymphocytes were scanty, and a few normoblasts were seen. The patient sank gradually, dyspnœa and cyanosis appeared, and he died on July 22nd. On the day before his death a blood count showed: Red cells, 4,100,000 per c.mm.; total leucocytes, 210,000 per c.mm.

*Post-mortem Findings.*

At autopsy a large mass, white and very tough, about the size of a cocoanut, was found in the mediastinum, spreading down over the heart and enveloping the borders of the lungs in such fashion as to resemble on section greatly thickened pleuræ. Behind and laterally the mass had infiltrated the lungs and bronchial glands, the latter being in places recognisable by the unaided eye only by the arrangement of black pigment. There were no metastases. Microscopically, the tumour mass showed (Fig. 1) cells resembling the leukæmic cells of the blood supported by a stroma which was in places dense and hyaline. The edges showed a looser and more cellular texture of leukæmic cells with a free capillary supply. Wherever examined the growth passed by infiltration into the

adjacent tissue, as is seen in Fig. 2, the section being made where the visceral pericardium is replaced by a sheet of growth ½ to ¾ of an inch thick, the free surface of which is lined by a layer of flattened cells, while the cells of the other passed freely between the muscle fibres of the heart wall. A similar condition is present where the sheet of tissue invades the lungs and pleuræ. No evidence was found of thymic tissue. The spleen was but little enlarged, showing (microscopically) leukæmic infiltration; the Malpighian bodies and their germ centres were very clearly marked. The liver showed some

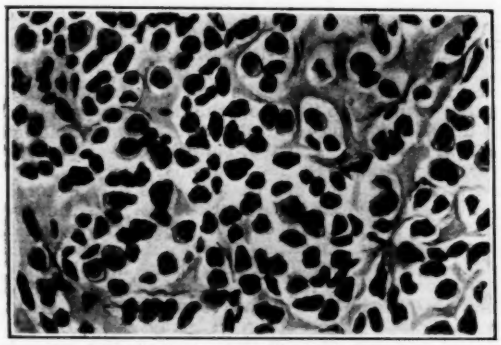


FIG. 1.—Section of mediastinal tumour.

infiltration, while the kidneys were almost unaffected. The abdominal glands were only very slightly enlarged, as were the axillary, cervical, and inguinal; microscopically, there was leukæmic infiltration, but the general structure of the glands was unaltered. The bone marrow of the sternum showed masses of the leukæmic cells, together with megacaryocytes, myelocytes, and erythroblasts.

*Remarks.*

**This association of mediastinal tumour and escape of cells into the blood stream is of considerable rarity and of great interest on account of the possible connexion between the leukæmias, lymphadenomata, and lymphosarcomata. Sternberg held that there were two distinct conditions:**

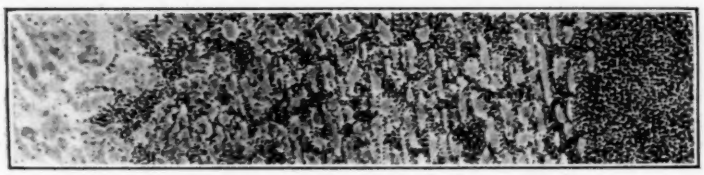


FIG. 2.—Section showing infiltration of heart wall.

**(1) Increase of cells of the small lymphocyte type with hypertrophy of the lymphatic apparatus and infiltration of the various organs—that is, lymphatic leukæmia; and (2) mediastinal leukosarcomatosis as described above. Fraenkel, on the other hand, thought that (2) was simply a leukæmia tending to form tumour-like masses of cells having the appearance of malignant growths. The situation of the growth suggests association with the thymus, and appearances have been described in similar cases which resemble Hassal's corpuscles. In this connexion it may be mentioned that Gamgee has described a lymphosarcoma of the thymus with no increase of white cells in the blood, while Lochte mentions two cases of enlarged thymus "epithelioid transformation" associated with acute lymphatic leukæmia.**

**The case described above presents one very remarkable feature, the high proportion of red cells right up to the time of death. For comparison, counts of other cases are given:—**

| | | | | | |
|---|---|---|---|---|---|
| (1) | Red cells: | 1,500,000 | per c.mm.; leucs.: | 176,000. | (Parkes Weber. |
| (2) | ,, ,, : | 1,600,000 | ,, ,, ,, : | 103,125. | ( ,, ,, ) |
| (3) | ,, ,, : | 1,472,000 | ,, ,, ,, : | 235,000. | (O'Kelly.) |
| (4) | ,, ,, : | 2,000,000 | ,, ,, ,, : | 60,000. | (St. Bart.'s Mus.) |
| (5) | | | ,, : | 810,000. | (Mager.) |
| (6) | ,, ,, : | 4,100,000 | ,, ,, ,, : | 210,000—case described here. | |

**In conclusion we wish to express our thanks to Majors W. Essex Wynter and A. F. Voelcker, R.A.M.C. (T.F.), for their kind assistance.**

A NOTE ON THE

## "NEW GAS AND ETHER."

BY J. BLOMFIELD, O.B.E., M.D.CANTAB.,

SENIOR ANÆSTHETIST AND LECTURER ON ANÆSTHETICS, ST. GEORGE'S HOSPITAL.

**BY "gas and ether" is usually meant, since the day of Clover, its inventor, a method of anæsthesia in which nitrous oxide plays a merely preliminary part in the induction, the maintenance of anæsthesia being entirely supported by ether. By "new gas and ether" I mean a method in which nitrous oxide is relied on throughout, and ether plays the supplementary part. The one is continuous ether with preliminary gas, the other continuous gas with occasional ether. It is a system which is widely applicable, gives good results, and requires only comparatively simple apparatus, for which reasons I venture to draw attention to it, although, no doubt, other anæsthetists have, like myself, been in the habit of using "gas and ether" apparatus in this way for years. I do not, however, remember having seen it definitely described.**

The apparatus necessary is merely a Clover's inhaler, preferably the wide-bore modification, and attached to it an ordinary 2 gallon bag with Hewitt's stopcock, connected with gas cylinders. With a small prop between the teeth, and the head turned well to one side, the facepiece is accurately fitted to the face while the bag is about two-thirds distended. The induction is now carried out as ordinarily with "gas and ether." That is to say, unconsciousness is secured with gas only, an ounce and a half of ether then put into the chamber, the expiratory valve shut, and the indicator fairly rapidly advanced till at the end of about four minutes there is stertor and full narcosis.

**From now onwards, instead of getting rid of the "gas," as in the old method, the aim is to use it all the time and the ether as little as possible. The procedure is as follows:—**

If the patient is a muscular man or in any way what is called a difficult subject let the indicator be advanced quite to "full" in the course of the induction. When anæsthesia is present turn the indicator rapidly back to "0." The patient is now re-breathing a mixture of $N_2O$, E., and expired air with $CO_2$. Open the expiratory valve, thus emptying the bag, and at once fill it two-thirds full again with $N_2O$, which you allow to be re-breathed. Give breaths of air by means of the stopcock as often as it is necessary to do so to keep the colour free from all blueness. Empty the bag, by opening the exploratory valve, about every five minutes. Any indication that the narcosis is too light is met by advancing the indicator and admitting a little ether.

**By this simple method a great many patients can be kept satisfactorily anæsthetised by an inhalation which is for the most part one of nitrous oxide. Consequently they are saved from the after-effects, which are the drawback to ether. At the same time they have the pleasant and quick induction**

due to nitrous oxide and they are provided with such advantages as may accrue from small quantities of $CO_2$ and from a vapour which is warmed. The completeness of relaxation which can be achieved depends a good deal upon the extent to which ether is admitted. For abdominal operations this is not a good method unless an oxygen cylinder is connected up with the bag, in which case results can be obtained equal, I think, to those that are secured by the fashionable "sight-feed" machines. In the absence of oxygen I find that too much ether is needed to get abdominal relaxation for this method to be any superior to open ether or to a C.E. mixture. Relaxation, in fact, is largely a matter of oxygenation. It is for such operations, though, as were so frequent in war surgery—long operations upon bones and sinuses of the trunk or limbs—that I have found the method so very useful, both because of the condition obtained on the table and for the freedom from much sickness afterwards. Here, for example, is a case typical of what I wish to enforce:—

Oct. 24th, 1917: Captain ——, in good health, slight build. Operation: reamputation of thigh; anæsthesia by "new G. and E.," 1 ounce of ether in wide-bore Clover; indicator to "F." during induction, then "E." off altogether and "G." re-breathed. Frequent breaths of air needed to keep colour good. Twice "E." admitted for a minute at a time on account of slight movement in other leg. Slight cyanosis allowed several times. No signs of shock. At end of 40 minutes operation finished. Patient talking within five minutes and very incredulous of operation having been performed. No after-sickness, no discomfort.

Another patient who had undergone a plating of the femur under C.E. narcosis had suffered greatly from sickness, so at a second operation I used this "new gas and ether." The operation took 50 minutes and he was conscious within three minutes, not nauseated at all, and feeling "quite happy." This patient was pale from long sepsis and needed very free aeration.

**With this method, as with all others, perfect results are not to be obtained with every kind of subject. Very fat persons, and those with narrow or obstructed upper air-passages are unfavourable. By modifying the procedure through the introduction of oxygen, in the fœbler kind of subject, and small quantities of chloroform added to the ether in the robust kinds, the great majority of patients can, however, be very well managed for a great variety of operations. When chloroform is added it should not be in proportions greater than 1 to 12 of ether. Generally speaking, it is not the method of choice for operations upon the upper abdomen, and is, of course, out of court where the face is concerned, except for very short procedures. It provides an excellent anæsthesia for rectal operations, for curetting the uterus, and for such proceedings as radical cure of hernia and hydrocele, and all operations upon the limbs.**

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LITERARY INTELLIGENCE.—Messrs. William Hodge and Co., Ltd., London and Edinburgh, announce for early publication, in their series of Notable Trials, "The Trial of Hawley Harvey Crippen."

ENHAM VILLAGE CENTRE.—The town of Southampton has collected towards the funds of the Enham Village Centre the sum of £500, which will be devoted to the erection and equipment of a basket-making shop, called the "Southampton Hut." It is hoped that many other towns in the United Kingdom will follow the lead given by Southampton. Subscriptions should be sent to the Secretary, The Village Centres Council for the Curative Treatment and Training of Disabled Ex-Service Men, 51, Lincoln's Inn-fields, Holborn, W.C. 2.

# Medical Societies.

## ROYAL SOCIETY OF MEDICINE.

### SECTION OF OTOLOGY.

EXHIBITION OF CASES AND SPECIMENS.

A MEETING of this section of the Royal Society of Medicine was held on Jan. 16th, Mr. HERBERT TILLEY, the President, being in the chair.

*New Knowledge on the Vestibular Structure.*

Dr. ALBERT A. GRAY (Glasgow) demonstrated, by means of a series of beautiful slides, some previously unrecorded anatomical details of the human vestibule, relating at the same time how the discovery was made. The first is a curious band of cartilage which encircles the oval window. The foot-plate of the stapes has a layer of cartilage on its vestibular surface, but no observer has pointed out that there is a considerable layer of cartilage extending over the inside of the vestibular wall, towards the cochlea, above the vestibule, and posteriorly towards the semi-circular canal. Another feature which he regards as new is a cleft coming down from the anterior margin of the oval window. This he has found to vary a good deal in different cases. Posteriorly, in many cases, Dr. Gray found a foramen of 1/10 mm. behind the posterior margin of the oval window. Another feature, which the demonstrator found it difficult to explain, concerns the position taken up by the stapes after death. In the exhibited specimens the stapes is rotated on a vertical axis, which passes through the junction of the middle and posterior thirds. Stereograms show that the stapes in the cadaveric position is not in the same plane as the wall of the oval window round about it, but the anterior two-thirds of it is rotated inwards, and the posterior third outwards. That he attributed to the action of the stapedius muscle, possibly, in his opinion, it is due to the spasmodic contraction of that muscle in the death agony, or to rigor mortis. In the ninth specimen which he examined the crura and the stapes had been rotated by caries or by cholesteatoma, and there was no drag on the stapedius muscle; and in that instance the foot-plate of the stapes was in the same plane as the oval window. This seems to give a clue to the function of the stapedius muscle. The cartilaginous layer Dr. Gray regards as a remnant of the cartilage surrounding the otocyst in lower forms of animal. Some authorities, he said, considered this change of bone in front of the oval window to be the cause of otosclerosis, but he thought these cells played more than a passive part in otosclerosis. The bony change seemed to always begin in the cochlear portion, never behind the oval window, though extension to the latter might occur. The persons from whom the specimens were removed were between the ages of 20 and 65.

The PRESIDENT cordially congratulated Dr. Gray on his work.

*Cases of Meningitis and Labyrinthitis.*

Mr. J. S. FRASER and Dr. J. K. MILNE DICKIE (Edinburgh) described an interesting series of cases—i.e., three examples of epidemic cerebro-spinal meningitis, and one of pleuro-pneumonia, bronchiectasis, meningitis, and labyrinthitis. In connexion with meningitic labyrinthitis the authors said that though most of the cases of labyrinthitis resulted from middle-ear suppuration, a minority were due to purulent lepto-meningitis, and in these latter, labyrinthitis secondary to epidemic cerebro-spinal meningitis occupied the first place. They agreed with those who considered that mumps deafness was secondary to meningitis. The original site of infection must be the upper or lower respiratory tract, the parotid gland, the tonsil, the alimentary tract, or other parts, but in all cases probably invasion of the blood stream was the next step in the production of meningitis. Mr. Fraser suggested that cases of meningitic labyrinthitis were much commoner than is generally supposed. He regarded

them as a very common cause of deaf-mutism. A child at an age prior to that at which talking was learned had meningitis, possibly connected with pneumonia or some zymotic disease. Infiltration occurred along the eighth nerve, passed to the cochlea, destroyed the inner ear, and the child never talked. It was probably considered to be a case of congenital deafness, whereas it was really acquired deafness, due to early labyrinth suppuration.

Dr. GRAY said he thought Mr. Fraser's suggestion concerning the cause of deaf-mutism after any form of meningitis was probably correct, because after epidemic cerebro-spinal meningitis deafness was very much more common than blindness. If that were due to the effect of the change within the cranium, why should that be so?

Dr. DAN MCKENZIE asked whether meningitis was ever induced by middle-ear suppuration extending along the facial canal and meninges only. Was it not true that the cases formerly reported as due to infiltration along the facial canal were also cases in which there was labyrinth suppuration from without? In most of the old records either the labyrinth was not mentioned, or the statement was made that pus existed in the labyrinth, hence in those instances it was impossible to say whether the meningitis was induced by irritation along the facial canal alone.

Dr. P. WATSON-WILLIAMS (Bristol) raised the question of the recoverability of children who were affected with suppuration involving the labyrinth. He discouraged the tendency to regard these cases as hopeless from the point of view of saving life, with the consequent failure to pursue active measures. He related such a case in his own practice in which he did a labyrinthectomy, opened the external semicircular canal and the cochlea, did repeated lumbar puncture, and used intravenous and intrathecal injections of colloidal silver, with the happiest result.

Mr. W. STUART-LOW congratulated Mr. Fraser and Dr. Dickie on their work, and said he had been struck with the number of these cases which were seen in large clinics. At his hospital the practice was to take such patients into the hospital so as to treat them adequately. In some instances he had done a cortical mastoid operation and it had produced benefit by draining the ear and setting up a better circulation. Help was also given by small frequent doses of mercury. He considered that the channels of infection were the throat, Eustachian tube, and middle ear. He believed that fugitive evanescent otitis media sometimes occurred without symptoms, and at such times infection of the labyrinth was set up.

Mr. SYDNEY SCOTT said he was interested in the question whether infection always took place from the labyrinth to the meninges or more frequently from the meninges, pia arachnoid, and seventh and eighth nerves to the labyrinth. He was not inclined to accept, without further evidence, Mr. Fraser's view that infection necessarily spread from the meninges to the labyrinth and then to the middle ear, because there might occur acute otitis media with infection in the naso-pharynx, which might resolve in the pharynx while it was still persisting in the tympanum; also that in certain parts of the tympanum the infection resolved while it persisted in some of the niches of the tympanic cavity. And the condition of the round window was such that in some cases there might be an unresolved infection in that region, though the infection had disappeared everywhere else.

Mr. FRASER replied.

*Sarcoma of Middle Ear Arising in Eustachian Tube.*

Mr. RICHARD LAKE showed a man, aged 33, who, while in Canada in 1918, complained of deafness in the left ear, and towards the end of the year pain in that ear and the left side of the head. In the following May a Vancouver aurist removed an aural polypus, a post-nasal growth, and the tonsils. Recurrence of the two latter took place in six weeks. A further operation was done in November, 1919, which Mr. Lake described. The healing of the cutaneous wound was immediate. A radium tube was buried in the middle ear for 12 hours. The health was now improving. The pathologist's report showed the growth to be a spindle-celled sarcoma involving the middle ear.

*Transplantation of Masseter Muscle for Facial Paralysis.*

Mr. SOMERVILLE HASTINGS showed a woman, aged 35, on whom labyrinthectomy had been carried out for severe giddiness of three years' duration, with the result that the giddiness was cured, but she had facial paralysis, with some necrosis of bone and some discharge from the ear. The result of the transplantation was a reduction in the deformity and the restoration of some movement at the angle of the mouth.

Mr. E. D. DAVIS showed an interesting series of cases. In the first the patient, who had resided in India many years, had suffered for 10 years from otitis externa and dermatitis. There was also much stenosis at the junction of bony and cartilaginous meatus. A conservative mastoid operation was done; no skin-grafting. The result was satisfactory, but there had been one attack of dermatitis since. The hearing was now improved. In the next case, a youth, aged 20, had stenosis of the meatus following the removal of a large sessile exostosis which extended from the meatal orifice to the drum. Stenosis recurred very soon after the removal of the drainage-tube, and had continued in spite of the insertion of a tightly-fitting smaller tube.

Mr. Davis next showed post-mortem specimens from a case of cerebellar abscess which was complicated by thrombosis of the lateral and the cavernous sinuses. There were two operations, and the patient died 24 days after the second. There was no meningitis. He also exhibited a sequestrum of the cochlea and semicircular canals following a fatal case of extensive encephalitis of the temporo-sphenoidal lobe.

Mr. ARTHUR CHEATLE exhibited a specimen of Aspergillus which was obtained from a mastoid cavity.

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## SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

### EXHIBITION OF CLINICAL CASES.

A MEETING of this section of the Royal Society of Medicine was held on Jan. 23rd, Mr. J. P. LOCKHART-MUMMERY, the President, being in the chair.

*Œsophagectasis in an Infant.*

Dr. FREDERICK LANGMEAD contributed the notes of a case of Œsophagectasis in an Infant, with radiograms.

The patient, a girl infant, was born at full term by a normal labour. She was a very small baby, weighing no more than 4 lb. at birth. Shortly after birth it was noticed that "something was wrong with her stomach." On the first day she retched and "vomited," even before her first feed. She was breast fed for one week, during which time she "vomited" occasionally, and her stools were green. At one week she was weaned and put on cow's milk and water. She was now constipated, but the "vomiting" continued; it occurred about an hour after food, was not projectile, and was often brought on by change in posture. At four months she was wasted and weighed "no more than 3 or 4 lb." Afterwards the "vomiting" was not so frequent and occasional feeds were retained. The constipation continued, hard small stools being passed. After her feeds she used to be very quiet, pale, and "collapsed," but recovered, and the colour returned after "vomiting." She slowly gained weight and reached 14 lb. 5 oz. at a year and three months old, one month before admission. For three or four months before admission the "vomiting" followed immediately after or coincided with a meal, and the food "did not seem to enter the stomach at times." The vomit was unaltered milk, sometimes accompanied by mucus. The father and mother were both healthy, and there was no history of neurasthenia or neuroses on either side of the family. The patient was the third child in a family of three, the elder members being quite well. No miscarriages.

On admission to hospital on Nov. 28th, 1919, the child was found to be fairly well developed and nourished, but with a pale face, slightly sunken eyes, and hanging folds of skin, indicating recent loss of fat. The fontanelle was slightly depressed. There were no signs of rickets. Examination of the abdomen revealed no tumour or gastric peristalsis. Heart and lungs were apparently normal. The knee-jerks were very exalted, otherwise there were no abnormal nervous phenomena. The urine contained acetone in definite amounts. After admission the child cried incessantly, apparently without pain. A stomach-tube was passed, but no food washed out. During the first 24 hours the child

refused all food and was fed by a tube; she "vomited" afterwards. Next day she took equal parts of milk and water a little better, but cried almost continuously if not nursed or petted. A single vomit contained mucus; the milk was not digested and contained no curd. On Dec. 4th, six days after admission, X ray examination was made after a bismuth meal. Three screenings were done, one immediately after the meal, one an hour later, and the last three hours later. A dilatation of the œsophagus was detected near its lower end, centrally placed, and about the size of a hen's egg. Immediately after the meal most of it was seen to be retained in the œsophageal sac, but some had passed on into the stomach. The second and third screenings showed that part of the meal was still retained. There was no obstruction in the alimentary tract below the cardia.

As the result of this examination an attempt was made to pass a stomach-tube twice a day with a view to introducing food and dilating the cardia. This appeared to be successful, but there was some doubt whether the tube curled up in the sac or traversed the cardiac opening; the vomiting was now less, but only 6 oz. could be held, the rest flowing back. To elucidate this point an opaque tube was passed under X rays, and it was found that the tube, ½ in. in diameter, would not pass through the cardia, but curled back into the sac on reaching the lower end. Since the child was losing weight and a tube could not be passed, Mr. O. Addison was good enough to see her with a view to surgical treatment. The œsophagus was examined with an œsophagoscope, which passed freely into the stomach under an anæsthetic, and revealed no organic cause for the retention of food in the gullet. No operation was considered advisable.

The case appeared to be one of œsophagectasis due to want of relaxation of the cardiac sphincter dating from birth, and to be similar to the examples of greatly dilated œsophagus recorded in adults. The absence of cough and dyspnœa, such as occurs in adults, could be explained by the relatively small degree of dilatation. There was probably a close analogy between this condition and that of pyloric spasm, and it would appear that it bears the same relationship to hypertrophic stenosis of the cardia that pyloric spasm does to hypertrophic stenosis of the pylorus. An example of hypertrophic stenosis of the cardia was shown before the last meeting of this section by Dr. Eric Pritchard; this was associated with hypertrophic stenosis of the pylorus. In this case the disorder at the cardia was the only defect. The endoscopic examination was important as demonstrating the absence of an organic lesion.

Dr. F. PARKES WEBER said that the condition had been found at all ages, and related the case of a man of 70 in whom no cause for the obstruction was found after death. Fatal cases occurred in adults, the patients dying of starvation. Early infancy was one of the recognised times for the disorder to make its appearance, and he quoted examples from the literature in which the diagnosis had been made in infancy, including a few instances at which it had been proved by radiography.

Dr. H. C. CAMERON had met with the condition not infrequently in adults. He suggests the use of a mercury tube, which in adults was successful in passing the pylorus.

Dr. G. A. SUTHERLAND commented on the early occurrence of the disorder, the first symptoms having appeared within a few hours of birth. He did not think a comparison between it and pyloric spasm very helpful, as the cause of the latter was unknown.

Mr. LOCKHART-MUMMERY said he was interested in the fact that the pyloric tube had been shown to curl up in the œsophagus. Investigations had shown that this was what happened when long slender tubes were used as with long rectal tubes in colonic lavage.

Dr. LANGMEAD, in reply, agreed that the cause of hypertrophic stenosis of the pylorus was unknown, and that no advance was made by comparing the condition under discussion with it. He intended merely to draw the comparison, thinking that the explanation of one, when forthcoming, might be true for the other. In answer to Dr. Weber, he thought that the diagnosis of the disorder by X rays with the exclusion of organic cause during life by œsophagoscopy was exceptional in so young a patient, and that the occurrence of symptoms within a few hours of birth was very rare.

Dr. R. C. JEWESBURY showed the Liver of a case of Cirrhosis in a child previously exhibited before the section and ascribed to alcohol. The cirrhosis was of the usual multilobular form, but the nodulation of the surface was not pronounced, and large areas were smooth.

Dr. E. A. COCKAYNE showed a case of

*(?) Raynaud's Disease and Necrosis of Nasal Bones.*

The patient was a boy aged 1 year and 2 months, who appeared normal up to the age of 3 weeks. At this age a bluish area appeared on the left hand, which was swollen. According to the mother, the centre of this came out as a "core." Shortly after this the child had an attack of diarrhœa and sickness. At 10 weeks there was a greenish-yellow offensive discharge from the nose, which had continued on and off ever since. The child was seen first at the age of 5 months. The bridge of the nose was very depressed and there was an offensive discharge. The fingers were blue and cold, with small septic areas on them, and the nails were deformed, and continued in this condition all through the summer. The child was fairly well nourished, but very susceptible to cold. There was a swollen red area just in front of the right ear, and a blue cold area with a necrosed centre in the middle of the cheek. The hands were blue and cold, and the child gave evidence of a good deal of pain in them. The fingers were thin, the skin blue and glossy, the nails deformed. Over the finger tips and nails there was much dry thickened epithelium. There was limitation of passive and active movements at the interphalangeal joints. The legs showed a blue mottling, and there were small scars on both legs. The toes were normal, but cold and blue. While under observation the finger tips had been almost black on two occasions, and on the dorsum of the left hand there had been a blue area with a dark centre of necrosed tissue. The Wassermann reaction in both mother and child proved negative on two occasions, in April and in July, 1919.

Dr. WEBER regarded the case as one of sclerodactylia, of which disease the early signs were the phenomena of Raynaud's disease. It should be sharply distinguished from Raynaud's disease proper.

Dr. SUTHERLAND said that Raynaud's phenomena should not be regarded as a disease; the condition sometimes improved by antisyphilitic treatment. In view of the nasal condition, he would not be deterred from advising antisyphilitic treatment by a negative Wassermann reaction.

Dr. COCKAYNE, in reply, said that antisyphilitic treatment had been employed, but without benefit.

*Polio-encephalitis Affecting the Mid-brain.*

Dr. J. C. SPENCE showed for Dr. F. J. POYNTON a case of Polio-encephalitis affecting the Mid-brain, with Involvement of the Pyramidal and Extra-pyramidal Systems.

The patient, a girl, aged 10 years, was a healthy, active child before the onset of the illness. The first symptoms arose in July, 1919, when she lost the use of her right arm. Later in the day her face became affected and appeared "to be twisted to the right." The child's mother stated that there was no accompanying loss of consciousness, vomiting, or signs of an acute feverish condition, and that she complained only of slight headache and loss of appetite. During the next few days she lost the use of her right leg, left leg, and left arm in turn, and her speech became affected. Within a week of the onset of the symptoms she was confined to bed unable to move her limbs, which were stiff and rigid, and spoke only in almost unintelligible monosyllables. She was very quiet and depressed, though subject to frequent emotional outbursts. She lay in this condition for a month before any change appeared. This was first seen in improvement in her speech and in return of the power to use her left arm, and was progressive up to her admission to hospital in October.

On admission she showed spastic paralysis of the right arm and leg. The arm was in a position of flexor rigidity, and there was a coarse tremor of the right hand. The tremor, absent during sleep or when the body was in a position of rest, was immediately brought into play by any emotional disturbance, attempt to speak, or carry out any muscular effort. On the left side the arm could be moved, but the movements were wildly ataxic, the leg was rigid, but there was slight movement at the hip- and knee-joints. Speech was slow, stuttering, and hesitating. There was no squint or ptosis. The pupils were equal, reacting normally to light and accommodation. The face was expressionless, and when the child was emotionally disturbed the loss of expression became more marked on the right side; but there was no true facial nerve paralysis. The right plantar reflex gave an extensor response, and there was an increased knee-jerk and ankle clonus on the right side. The left plantar reflex gave a more indefinite extensor response, difficult to elicit. There was no ankle clonus on the left side: the left knee-jerk was increased. No changes in

sensation were detected. The fundi oculi were normal. The cerebro-spinal fluid was clear, sterile, and without any increase in cells or albumin content. Wassermann's reaction was negative. No abnormal physical signs could be detected in the heart or lungs. The urine was normal.

During the past two months the clinical picture had changed a little. While the right hemiplegia had persisted, unaltered except for a slight return of movement in the right leg and right arm, there had been distinct improvement in the tremor of the right hand, the ataxia of the left arm, the speech, and the control of the emotions. The ataxia, which on admission was very wild, had almost disappeared. She was no longer subject to the sudden and inexplicable emotional changes. A careful look-out had been kept for any signs of ocular paralysis. In December there was slight inequality of the pupils for about two weeks. During the past three weeks there had been a fine lateral nystagmus, but there had been no signs of third, fourth, or sixth nerve involvement.

Dr. W. MITCHELL SMITH said that if considerable deformity were to be avoided the limbs should be kept in a position preventing muscular relaxation of the affected muscles, and should not be removed at all from the necessary apparatus.

## TUBERCULOSIS SOCIETY.

AT a meeting of this society held on Jan. 19th Dr. H. DE CARLE WOODCOCK, the President, being in the chair, Sir HENRY GAUVAIN gave an address upon

*Surgical Tuberculosis Considered from the Standpoint of the Tuberculosis Officer.*

Sir Henry Gauvain said that he hoped that he would not be thought presumptuous if he criticised the lack of interest which was shown by tuberculosis officers in this branch of tuberculosis work. Perhaps this arose in part because of the name, and because the public were accustomed to think that the subject came entirely into the realm of the surgeon and should not be treated by the specialists in tuberculosis. This idea was quite wrong. Although there were 10,000 deaths every year in this country from surgical tuberculosis, he had been struck, when he began practising, that there was not a single man who devoted his whole time to this form of the disease. He hoped that now that tuberculosis officers were appointed all over the country they would take an active share in this branch. The disease was caused by the same organism and called for similar methods of treatment, with additional local measures. The tendency of the operating surgeon was to treat the local trouble and then to dismiss the patient without undertaking general treatment. This was a mistake. In no variety of tuberculosis is the prognosis so good as in the surgical forms when adequate treatment is adopted, and operative interference is less and less required in proportion as other measures are timely. The tuberculosis officer is, however, of the greatest importance, because upon him devolves the work of early diagnosis and the after-care, both of which are so essential if success is to be attained. The need for surgical interference had become less and less, and at Alton not a single joint had required excision for some time past. There were three amputations during the last year, in all of which the necessity arose from sepsis introduced by previous surgical interference. Preservation of parts was aimed at, and not removal. Speaking of differential diagnosis, Sir Henry Gauvain said that he had had cases sent to Alton as spinal caries which proved to be rickets or scoliosis, congenital malformation of the spine, syphilitic disease of the spine, typhoid disease of the spine, or osteomyelitis. In hip disease the chief fallacies were pseudocoxalgia and streptococcal disease, or osteomyelitis of the femur. Pseudocoxalgia could be recognised by limitation of abduction and rotation, slight shortening, and some spasm. It caused some destruction of the end of the bone, with flattening of the head, and periostitis of the neck with increase of cartilage. There was no limitation of flexion, which was an early sign in tuberculous disease. The prognosis was good. In septic diseases the onset was almost invariably sudden, whereas in tuberculosis it was insidious. No doubt most cases of tuberculous bone disease needed treatment in a special institution, but the after-care should be taken over by the tuberculosis officer. Such questions as when to discard a splint, when to resume ordinary life, how much exercise to take, what occupations to take up, when a case may be considered quiescent, are all to be answered in the after-care period. Intensive post-graduate courses had been started at Alton, each lasting ten days, with lectures and facilities for practical work, and Sir Henry Gauvain invited tuberculosis officers to avail themselves of the opportunity afforded. There should, he said, be time and opportunity given by the authorities for such special courses of study. He also suggested that the establishment of a diploma in tuberculosis should receive consideration on the lines of that in radiology and electrology recently granted by Cambridge University.

A series of lantern slides were thrown upon the screen showing the hospital at Alton, the work carried on there, and the results of treatment in typical cases. A short discussion ensued, and the following resolution was passed:—

**That representations be made to the various examining bodies with a view to the establishment of a diploma in tuberculosis.**

## THE MEDICO-LEGAL SOCIETY.

A MEETING of this society was held on Jan. 15th at 11, Chandos-street, W., Mr. R. HENSLOWE WELLINGTON, the President, being in the chair.

*Proposed Formation of a Parliamentary Committee.*

A proposal of the Council to the effect that a special Parliamentary Committee be formed, was discussed, and supported by Earl RUSSELL and other members. It was agreed unanimously that such a committee should be appointed to watch legislative proposals having medico-legal importance and to report to the Council and take such steps as may be found necessary. The Council was directed to take the necessary steps to form the committee.

Mr. DOUGLAS COWBURN read a paper entitled,

*Some Experiences in a Coroner's Court.*

After referring to the wealth of medico-legal material of enormous importance and great interest that becomes lost, for general purposes, owing to the inaccessibility of coroners' records, he detailed a number of cases presenting unusual if not unique features. A fatal case of poisoning by permanganate of potash in solution was narrated as of extreme rarity, as also a case of death from "status lymphaticus" without any ascertainable precedent fright, shock, or injury. The question was raised of the frequency of status lymphaticus as a cause of death apart from the administration of anæsthetics. Mention was made of two deaths during the administration of nitrous oxide gas, of one in which, while A.C.E. mixture was being given, an œsophageal varix ruptured, causing death by asphyxia from inhaled blood. It was pointed out that athletic alcoholics appear particularly unsuitable persons for certain anæsthetics and that the proportion of persons dying during the administration of anæsthetics and found to be the subjects of malignant disease was very notable. Mr. Cowburn, speaking as a coroner, emphasised: (1) the necessity always for a post-mortem examination; and (2) the fact that, especially in cases of death during treatment, relatives of the deceased were invariably satisfied when such an examination is made by an independent expert.

Mr. A. M. M. FORBES, also speaking as a coroner, agreed that post-mortem examination is necessary, but insisted that the "post-mortem" must be a "good" post-mortem.

Dr. F. G. CROOKSHANK alluded to one of Mr. Cowburn's cases—that of a lady who died, ten days after a fall, of intestinal obstruction unrelieved by operation, and of which the cause remained unexplained by a post-mortem examination—as probably belonging to that group of cases discussed by him, under the name of "delayed shock," in the Transactions of the Society for 1912–13 (Vol. X.). A number of such cases had from time to time been reported, but their occurrence,

although of great medical and legal importance, had been persistently overlooked.

Dr. B. H. SPILSBURY very cogently supported Mr. Cowburn in regretting the loss of so much valuable material for teaching purposes, drew attention to the attempts made by the society to form a museum, and referred to the remarks made by the President in his recent address on the importance of founding the teaching of forensic medicine upon the wealth of experience afforded in London, though almost neglected.

Mr. A. S. MORLEY, speaking as an anæsthetist, said that in some cases it appeared to him that the surgeon rather than the anæsthetist should be summoned before the coroner in cases of death during operation.

The PRESIDENT, in expressing the thanks of the meeting to Mr. Cowburn for his valuable and instructive paper, referred to a dictum of the late Sir Frederic Hewitt concerning the responsibility always attaching to anæsthetists in the case of death during administration of an anæsthetic, and Mr. COWBURN replied.

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LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.—A meeting was held on Jan. 20th at 11, Chandos-street, W., Dr. Emily Flemming, the President, being in the chair.—A discussion on Infant Welfare Centres was opened by Dr. Flora Shepherd, who described the organisation of such work. She said that in order to be successful each centre should be under the administrative control of the medical officer of health, and that the medical officer of the centre should send him monthly reports of the work done. Each centre should be responsible for all the work required, so as to avoid overlapping by health visitors sent by different authorities. No centre should be more than 20–30 minutes' walk from the homes, and not more than 30 children could be satisfactorily attended to in one session of two and a half hours. In a well-organised district there should be an attendance of 60–70 per cent. of all the births notified. She said that antenatal consultation should be entirely separate from infant welfare consultations.—Dr. Helen Robertson read a paper on Natural Feeding of Infants. She referred to some of the causes of inability to feed infants, and described how they could be helped by treatment at welfare centres. Among the points mentioned were nasal obstruction in babies, depressed nipples in the mothers, and bad health due to dental disease. She also referred to the fact that some babies got on well when fed only four times in 24 hours, and said that it was generally better not to wake them for feeding.—Dr. Alice King then read a paper on Artificial Feeding of Babies. She said that no rules could be given, as cases had to be judged on their own merits. She advised fresh cows' milk, boiled, and in estimating quantities she considered weight and size of much more importance than age. Fresh fruit juice, raw or underdone meat juice and cream should be added from an early age. Dried milk should be used as a routine when hygienic or atmospheric conditions were unfavourable. Dr. King found that dried milks were better tolerated than ordinary cows' milk by infants with digestive powers below the average, especially when prepared by the Béverat-de-Neven, as compared with the Hatmaker process. She preferred plain, desiccated milks, which could always be modified as required to those modified in preparation, such as glaxo, although many infants did well on the latter. Evidence showed that the antiscorbutic and antirachitic properties of milk were not decreased to any great extent by desiccation, but fresh fruit or vegetable juices should invariably be given with a dried milk diet.—A general discussion then followed, in which Dr. Ethel Bentham, Dr. Esther Harding, Dr. Clara Fitter, Dr. Janet Campbell, Dr. Grace Briscoe, and Dr. Octavia Lewin took part.

DEVON AND EXETER MEDICO-CHIRURGICAL SOCIETY.—The annual meeting of this society was held at the Royal Devon and Exeter Hospital on Jan. 15th, Mr. R. Pickard being in the chair.—The following cases and specimens were exhibited:—Dr. R. V. Solly: A case of Oriental Sore in which various methods of treatment were mentioned. Also microscopic specimens of Anthrax from recent cases, Vincent's Angina, and a section of Liver from a girl, aged 19, who for many years had suffered from slight jaundice, with some cyanosis and attacks of pyrexia. The girl died from streptococcic septicæmia (proved by blood culture), and post mortem general peritonitis was found, with liver showing a nodular cirrhosis with marked bile staining of liver substance; microscopically there was a monolobular and intercellular cirrhosis with many new-formed bile ducts.—Mr. B. Dyball showed skiagrams of Perthe's Disease (osteochondritis juvenilis deformans) and of Rejuvenation of Diaphyses Tibiæ in a case of tubercular disease; a specimen of Lipoma of Cord and Varicocele, where the veins contained numerous phleboliths; a specimen of Tibia, which at first was diagnosed by a well-known London pathologist as osteitis fibrosa, but later the patient died from spindle-celled sarcoma, which was no doubt the original disease; a specimen of Carcinoma of Kidney and one of Congenital Cystic Kidney removed by operation.—Mr. A. C. Roper showed specimens of (1) Ruptured Tubal Gestation removed by operation, with well-formed fœtus; (2) specimens of (*a*) Adeno-carcinoma of Body of Uterus, and (*b*) Squamous Epithelioma of Cervix; (3) Renal Calculus with skiagram; (4) a completely detached Calcareous Fibromyoma of Uterus about the size of a hen's egg.—Mr. A. L. Candler showed a temperature chart of a case of Suppuration of Knee-joint, successfully treated by pumping ether into the joint.—Mr. N. F. Lock showed: (1) Specimen of Synovial Membrane, showing formation of many loose bodies. (2) Saccular Traumatic Aneurysm of Superior Profunda, producing paralysis of ulna, musculo-spiral, and musculo-cutaneous group of nerves. The aneurysm was removed intact and showed partially organised clot. (3) Specimen of Traumatic Aneurysm of Posterior Tibiæ also removed by operation.

*Election of Officers.*—The following officers for the ensuing year were elected:—President: Mr. B. Dyball. Vice-President: Mr. P. H. Stirk. Council: Dr. J. S. Steele Perkins, Mr. R. Worthington, Dr. C. N. Lovely, Dr. G. H. Hanna, Dr. Bertha Mules, and Dr. W. H. Date. Treasurer: Mr. R. Pickard. Secretaries: Dr. R. V. Solly and Dr. G. L. Thornton. Auditors: Dr. F. A. Roper and Mr. A. L. Candler. The following were elected members of the society: Dr. H. A. Cookson, Dr. Barrow, and Dr. J. Allen.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.—At a meeting of this society held in Edinburgh on Jan. 21st Dr. John Eason read a paper entitled "An Inquiry Regarding the Age and Sex Incidence of Pernicious Anæmia," and quoted first the views of various authorities to show that it was generally held that the disease was one mainly met with in middle life. He pointed out a number of defects in all available statistics, and particularly that no account was taken of the age-distribution of the population. Eliminating the various fallacies, a careful analysis of 600 cases treated in Edinburgh hospitals during the last 21 years showed that the incidence of the disease steadily increased with age, and was distinctly more common in females than in males. In men the relative maximum was reached at the age of 69, whereas in women it was attained about the age of 50, the figure for later years remaining about the same.—Dr. John D. Comrie read a paper on Scurvy, based upon cases observed while acting as consulting physician to the British Forces in North Russia. After a brief historical note, the lecturer stated that scurvy was prevalent in North Russia amongst the inhabitants every year during the winter months, and that the favourite treatment there adopted was the administration daily of two pints of fresh milk. Many cases were to be seen in the civil hospitals and among Russian prisoners, but the disease was very rare amongst the British troops. A careful analysis of cases showed that approximately 4·7 months of defective diet were necessary before the disease made its appearance, but that this period might be considerably shortened by other diseases. Of all symptoms, hæmorrhage was the commonest, particularly the purpuric rash on the legs. In half the cases also there were deeper hæmorrhages into the muscles, especially over areas exposed to pressure. Bleeding into a joint provided one of the most troublesome features of the disease, and was particularly prone to be followed by the formation of adhesions. Depression, pain in the head and legs, and the characteristic condition of the mouth were other prominent symptoms. Sudden death was not at all uncommon. Effusion into the pleura was frequent; brown atrophy of the heart was a characteristic post-mortem finding. The blood changes were those of a secondary anæmia, with a lymphocytosis. Under suitable treatment the hæmorrhages became rapidly absorbed and complete recovery (with the exception of contractures) usually took place in about a month. Careful investigation of various vitamine-containing articles of diet showed that cases recovered most rapidly which were treated with soured milk, while fresh meat and fresh lime-juice also gave excellent results. Preserved lime-juice did not prove satisfactory.—Mr. J. W. Struthers read a paper on Perforated Gastric and Duodenal Ulcer, quoting from personal experience some 90 recent cases. Under present conditions he said that the mortality in cases of perforation was approximately about 20–25 per cent. In a large proportion of those observed symptoms pointing to ulcer had been present over a long period, but in others the onset was sudden or the antecedent symptoms very mild. Apart from the danger of perforation, ulcer was also attended with the possible sequence of pyloric stenosis or gastric cancer. Discussion was invited as to whether more cases should not be submitted for surgical treatment in the early stages than had hitherto been customary, as it was only by treatment prior to perforation that a lessened mortality could be expected.

# Reviews and Notices of Books.

## PHYSIOLOGICAL PRINCIPLES IN TREATMENT.

Fourth edition. By W. LANGDON BROWN, M.D., F.R.C.P. London: Baillière, Tindall, and Cox. 1919. Pp. viii. + 427. 7s. 6d.

IT is an axiom—or a dogma—that medicine is the better for association with physiology. But different opinions are held as to the method of association. Some physiologists have clamoured for perpetual access to the patient, forgetting the human complexities of the art of medicine and surely unmindful of the true progress of their science. Others have not been content to throw physiology neck and crop into the technological mill of the wards and would have those parts of physiology which are obviously germane to medicine taught and brought into practical use by the clinicians. The question is, indeed, part of the debate as to whether the segments of the medical curriculum are to overlap upwards or downwards. It is much to be hoped that the introduction of whole-time teachers of medicine and surgery in the London schools will finally demonstrate the superiority of the latter arrangement, and will create a body of clinical teachers with the necessary leisure to keep themselves properly acquainted with the progress of natural knowledge and thus desirous to apply to practice such parts of it as they find useful. But medicine and surgery after all consist of clinical problems which must be solved by clinical methods.

In the present volume Dr. Langdon Brown shows how the desirable combination of physiological knowledge and clinical practice may be achieved under less favourable conditions than we may now anticipate will prevail. Four editions in 11 years prove that his book has been acceptable and useful, and the atmosphere of practical medicine which he creates out of physiology is most successful. The work does not pretend to be a complete systematic treatise; it is really a series of essays, grouped on a clinical rather than a physiological basis—a plan which has the immense advantage that each chapter is plainly the result of practical personal experience. The physiologist could find a good many small matters for debate if he were on the look-out for them; how, for instance, constipation can raise blood pressure "mechanically" (p. 359), how potassium iodide ferrets out the toxins which lurk in lymph spaces (p. 360). But he would also find a wealth of interesting clinical experience which, if not altogether based on the sort of evidence he is accustomed to ask for, is not the less credible; as the author points out, observations made in the laboratory are not necessarily more correct than clinical evidence. The present edition has been revised throughout; the chapters on diabetes and vitamines are mostly new, and it is not the author's fault that acidosis has jumped off on another track (and perhaps run away altogether) since he wrote his account of it.

## GERIATRICS.

A Treatise on Senile Conditions, Diseases of Advanced Life, and Care of the Aged. By MALFORD W. THEWLIS, M.D. With introductions by Dr. A. JACOBI and Dr. I. L. NASCHER. London: Henry Kimpton. 1919. With 13 illustrations. Pp. 250. 15s. net.

THIS book differs considerably from the treatise by Dr. Nascher, the second edition of which was reviewed in THE LANCET of August 9th, 1919. Each chapter forms a kind of clinical lecture in itself, plentifully illustrated by short notes of actual cases and written in an easy style, forming, it may fairly be said, interesting and even cheerful reading for the busy practitioner. The chapter (III.) on "The Value of Age" refers to excellent work done by many famous persons, past and present, when well advanced in age. The headings of two other chapters are respectively: "Work for the Aged" and "Keep Senile Cases Out of Bed." These two headings give a clue to much that the author tells us in regard to the management of the aged. We cannot better illustrate his method than by quoting more or less at random from the text: "*Staying in the harness* is the real secret of bringing about the best results from our aged minds. ..... The responsibility of work helps them beyond measure." "We should provide some work for our aged friends and relatives. ..... It is wrong to think that, because a man has worked hard all his life, he should not work any more. ..... Never change an old person's mode of living." The amount of fat required in the diet in old age is apparently but little less than that required in maturity, whilst the protein and carbohydrate factors are much less. "An excessive amount of salt is detrimental to the kidneys, but the spices, acid, and sugar are beneficial in old age." In senile bronchitis "the discharge, no matter how profuse or fœtid, should not be checked, as this may cause paralysis and suffocation." "Aged persons should avoid retaining urine too long," and when they empty the bladder they should take care to do so as thoroughly as possible, even if thoroughness necessitates the expenditure of a few extra moments of time. The author quotes the saying, "In maturity nature tends to cure, while in senility nature will kill." He refers to a fatal case in which he thinks that an attack of cardiac pain was mistaken for gastritis, and in which nitroglycerine might have saved the patient's life. The use of alcohol as a drug is commended in the following words: "Alcohol forms one of our best weapons in treating the aged, especially when there is much debility. I usually administer it to its full physiological action—that is, until the cheeks become red and the mouth becomes parched. In pneumonia, or even in some forms of chronic nephritis where there is extreme weakness, it is of value." The habit of taking a certain amount of alcohol daily should, according to Dr. Thewlis, like other old habits, not be tampered with in aged persons. We suggest that the danger of cutting off morphine altogether in senile patients who are accustomed to it might have been referred to here.

Here is another piece of counsel. "We must not forget that it is not always the object in the aged to heal or correct an abnormality. Frequently, as with fistula, nature seems to use the disease to rid the system of some toxin, and as long as it is not disturbed they remain in good condition." In regard to operations on senile patients the author again urges the importance of getting them out of bed as soon after the operation as possible. His keynote in geriatrics is: "Keep senile cases out of bed." Readers need not agree with all the author's views, but all who study the book will be compelled to recognise its shrewdness and practical wisdom.

## THE PATHOGENIC BACTERIA AND PROTOZOA.

A Text-book for Students of Medicine and Physicians. Ninth edition, revised. By JOSEPH MCFARLAND, M.D., Sc.D., Professor of Pathology and Bacteriology in the University of Pennsylvania, &c. London and Philadelphia: W. B. Saunders Company. 1919. With 330 illustrations, a number in colours. Pp. 858. 21s.

LIKE other excellent and now numerous text-books on bacteriology which have appeared in America during the past twenty years, this work is distinguished by definiteness of aim and methodical and systematic treatment of subject, while the good style in which it is produced is also what we have been led to expect. The purpose of this book is set forth in the title, and is kept rigidly in view. The author avoids the danger of the incorporation of excessive material, and has indeed reduced somewhat the size of the book. The particular features and merits of the book have been fully set forth in reviews of previous editions, so that, as there appears to be no such considerable change in the present volume as occurred when the pathogenic protozoa were added to the subject matter of the book, it suffices to say that the work satisfactorily fulfils the purpose for which it was written. The section on anterior poliomyelitis, which was somewhat inadequate in the 1912 edition, now contains Flexner and Noguchi's cultural results, but little if any work

done since 1913 finds a place. The chapter on relapsing fever groups together the European, African, and other forms, and gives a good general view of the subject, while Leishman's observations, formerly omitted, are now included, and there is an interesting appendix describing the vectors of the spirillum. The work on infective jaundice and on rat-bite fever is well epitomised. The chapter on yellow fever will probably require considerable alteration in the next edition, as the recent work of Noguchi, if confirmed, will revolutionise our knowledge of the ætiology of the disease. The anaerobic infection of wounds has become of great importance during the war, and under the heading of gaseous œdema some of the recent work on the organisms found in this condition has been incorporated, but there does not appear to be any notice of the effect of prophylactic treatment of tetanus on the character of the subsequently developing disease, nor of the experience gained with regard to vaccination in typhoid, cholera, and dysentery. The section on influenza shows no influence of recent experience, but the results of this are perhaps too uncertain to be incorporated in a text-book.

Though this edition is possibly not brought up to date as completely as it would have been if produced in quieter times, this detracts but little from its merits as a text-book, and it can be confidently recommended to the student.

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### PSYCHIATRIC-NEUROLOGIC EXAMINATION METHODS.

With Special Reference to the Significance of Signs and Symptoms. By Dr. AUGUST WIMMER, Director, St. Hans Hospital, Roskilde, Denmark. Authorised translation by ANDREW W. HOISHOLT, M.D., Professor of Psychiatry, Leland Stanford Junior University, San Francisco, California. London: Henry Kimpton. 1919. Pp. 177. 10*s.* 6*d.* net.

THIS slender volume is intended to be a guide to the student and practitioner for his examination of nervous and mental cases. It contains a more or less systematised semiology, on a small scale, of the nervous and mental affections of the commoner sort, arranged by mechanisms; on the nervous side we have external habitus, organs of sense, speech, motor disturbances, abnormal movements, paralyses, sensation, reflexes, and so on; on the mental, attention, apprehension, orientation, sense-deception, fallacious ideas, imperative ideas, memory—to name but a few of the sections. It is really becoming a difficult matter to compress the normal and pathological physiology of the nervous system, and the normal and pathological psychology of the mind, into a few pages, though the author has managed his task with some degree of success. Of the few (nine) diagrams which the book possesses some are altogether useless; we feel many more should have been included, or none at all. Occasional unfamiliar expressions in the translation pull the English reader up; the cervical enlargement is called the "cervical intumescence," and "baroque physical influences" seem to have wandered in from architecture.

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### SWANZY'S HANDBOOK OF THE DISEASES OF THE EYE AND THEIR TREATMENT.

Twelfth edition. Edited by LOUIS WERNER, M.B., F.R.C.S.I. London: H. K. Lewis and Co. 1919. With nine coloured plates and 273 illustrations. Pp. 671 + xviii. 22*s.* 6*d.* net.

To keep a standard text-book, such as this, up to date without unduly adding to its bulk is a feat which has been very successfully accomplished by the editor. It contains nearly all that it is good for a student to know until he begins to find things out for himself. Moreover, it is no patchwork such as some text-books which run through many editions are apt to become, but can be read through usefully and pleasantly. Taking for granted a knowledge of the anatomy and physiology of the normal eye, the book starts with a short chapter on optical structure and functional examination, and another on the use of the ophthalmoscope. The student is recommended to read these and the chapters on elementary optics and refraction immediately on joining the ophthalmic hospital or department. The rest of the book gives a clear account of the diseases which affect the various parts of the eye, including the ocular symptoms liable to accompany focal and diffuse disease of the brain and of the spinal cord. The weak side of the book concerns treatment. We look in vain for needed information on the substitutes for atropine, on the different forms of silver salts, and on the action of local anæsthetics. A short chapter on the therapeutics of the eye would be valuable in future editions.

The chief improvements in this edition over former ones are in the chapter on diseases of the cornea and in the account of the exact knowledge of the localisation of lesions of the occipital lobe, gained through the experience of the war. And here some of the more difficult points might, we think, have been omitted or accompanied by references to other authorities. For instance, the so-called spiral fields of neurasthenia should not now be mentioned without a reference to the work of A. F. Hurst, who attributes them entirely to suggestion. Again, it may be perfectly true to say that night-blindness is a result not of defective light sense, but of imperfect adaptation; but this statement conflicts with other authorities, and should therefore be made, not dogmatically, but with some indication of where a reasoned argument on the subject may be found. These, however, if defects, are minor ones, and we can whole-heartedly recommend the book to students. The coloured illustrations drawn by the editor are a valuable feature.

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### BING'S COMPENDIUM.

Kompendium der Topischen Gehirn- und Rückenmarksdiagnostik. By ROBERT BING, a. o. Professor an der Universität Basel. Vierte neu durchgesehene Auflage. Berlin: Urban and Schwarzenberg. 1919. Mit 97 zum Teil mehrfarbigen Abbildungen. Pp. 235. M.16; geb. M.20.

Professor Bing's well-known compendium is much improved from its second edition, which we reviewed in 1911. It is larger and more inclusive, while its features of clarity of expression and of diagrammatic representation are as noticeable as before. Going over the volume critically we meet with several indications that the author is not abreast of the most recent neurological research in countries outside Central Europe. Professor Bing cites the old criteria of total transverse lesions of the cord without apparently recognising that this is a chapter which war experience has completely rewritten. His description of the pathological reflexes shows that he fails to regard them as parts of mesencephalo-spinal mechanisms revealed by interference with cortico-spinal function—a point of view which is not merely more instructive, but calculated to bring them all into line in a way never hitherto attempted. He speaks of spinal automatisms, as we know them, as "flight or defence reflexes," an expression already out of date. The surprising attitude is adopted that tremor, chorea, and athetosis are the result of irritation of the pyramidal path in the crus—a definite error. Professor Bing describes a lenticular syndrome consisting of contralateral paresis in face, arm, and leg, exaggerated deep reflexes, difference in the pupils, and atrophy of the opposite limbs and some sensory changes. Whatever this syndrome may be, it is not that of the lenticular nucleus. He states that bilateral arterio-sclerotic lesions of the basal ganglia cause permanent incontinence of urine with an automatic bladder, but it seems incredible he should be unaware of much less debatable symptoms associated with such a pathological basal lesion. He regards xanthochromia of the cerebro-spinal fluid as a sign of extramedullary spinal tumours, yet it occurs in other quite different spinal conditions.

Apart from the revision which these and other criticisms may justify, Professor Bing's compendium will be found reliable and useful as a practical aid to neurological diagnosis.

## JOURNALS.

*Journal of Physiology.* Edited by J. N. LANGLEY, Sc.D., LL.D., F.R.S. Vol. LIII., Nos. 3 and 4. Cambridge University Press. Pp. 147–271. 10s.—Vaso-motor Centres. Part II.: Observations on the Action of Strychnine, by J. N. Langley. The experiments were made on decerebrate curarised cats. Strychnine is for convenience spoken of as causing a rise of blood pressure by stimulating nervous centres, although it is still an open question whether it stimulates or only increases the responsiveness of centres to external stimuli. The spinal cord was stimulated by placing electrodes flat on the surface of the cut lower end of the cord. Currents rather strong to the tongue were required to produce a marked rise of blood pressure. Strychnine up to a certain amount increases the rise of blood pressure caused by submaximal stimulation of the spinal cord. Above this small amount it causes a decrease of the effect of cord stimulation, but complete absence of stimulation is not caused by 60 mg. The effect of strychnine on the bulbo-spinal animal closely resembles its effect on the spinal animal. The maximum rise of blood pressure is caused by a small amount; after this amount has been given, further injection causes a slight and decreasing rise. The differences are, in the main at any rate, due to the higher central tone and better circulation in the bulbo-spinal animal; the later injections of strychnine cause a much more marked primary fall of blood pressure and partial recovery. The form of the blood-pressure curve with injections of strychnine, after the first, depends on the balance of several factors—viz., the remaining excitability of the central vaso-constrictor centre, the degree of paralysing action on central tone, and the degree of peripheral action, which is probably a weakening of the heart beat. Central vaso-dilator stimulation plays little part in the form of the curve, though in the dog there is with the first injection more or less flushing of the bucco-facial region. Strychnine causes an apparently maximum rise of blood pressure after excision of the suprarenal gland and it causes some rise of blood pressure after removal of the abdominal viscera, and it is inferred that its action on cutaneous vessels, apart from local spinal areas, as on visceral vessels, is one of constriction. Strychnine does not convert vaso-inhibitory into vaso-constrictor impulses. Strychnine after a large dose of ergotoxin causes a trivial fall of pressure, probably of peripheral origin. In anæsthetised animals strychnine, after causing a primary fall, may cause a slow rise of blood pressure above the original height, suggesting stimulation above the level of the spinal bulb.—The Neutrality of the Blood, by W. M. Bayliss. The author uses neutral red as an indicator for the determination of the hydrogen-ion concentration of arterial blood. This substance, within certain degrees of ion-concentration, gives a regular series of changes in tint from crimson to yellow. Intravenous injection of acid in sufficient quantity to neutralise half the bicarbonate in the blood does not increase the hydrogen-ion concentration of the plasma. The chief mode of compensation is by increase in pulmonary ventilation and consequent decrease of carbon dioxide in the blood. Renal excretion of acid and ammonium production in the liver do not appreciably come into play in short experiments. Injection of alkali is not so easily neutralised. The chief agent in this case appears to be the excretion of alkaline urine. The proteins of the plasma play no appreciable part in the maintenance of neutrality between the limits of hydrogen-ion concentration possible in the living organism. No evidence was obtained either that sodium bicarbonate, serum-proteins, or both together convey carbon dioxide from the tissues to the lungs. Thus the only function of sodium bicarbonate in the blood is to regulate the hydrogen-ion concentration, while, under normal conditions, the only function of the proteins is to give a colloidal osmotic pressure and a moderate degree of viscosity to the blood.—Experiments on Acclimatisation to Reduced Atmospheric Pressure, by J. S. Haldane, A. M. Kellas, and E. L. Kennaway. The characteristic physiological effects of lowered atmospheric pressure at high altitudes were proved by Paul Bert to be due, not to lowering of the mechanical pressure of the air, but solely to lowering of its oxygen pressure and consequent inefficient oxygenation of the blood. The present experiments were undertaken in connexion with a projected expedition to the higher peaks of the Himalayas. Preliminary experiments in a closed chamber were made in order to observe the effects of exposure for some time to a pressure of half an atmosphere on respiration, pulse, cyanosis, mental and sensory symptoms, capacity for muscular work. After half an hour there was practically no discomfort. The symptoms of the anoxæmia in these and more prolonged and varied experiments are described and discussed. These symptoms appear to be less marked than when the alveolar oxygen pressure is reduced to the same extent by simply reducing the oxygen percentage in the air breathed. The severity of the symptoms is not always proportional to the blueness of the lips and face, and particular symptoms vary a good deal. During anoxæmia there is a very marked diminution in the acid excreted by the kidneys and a less marked diminution in the excretion of ammonia. Partial acclimatisation to reduced atmospheric pressure was obtained by discontinuous exposure to progressive diminution of pressure; but this partial acclimatisation was apparently due almost entirely to increased inward secretion of oxygen by the lung epithelium. A mere increase in respiration or circulation cannot relieve the anoxæmia, and the conclusion is drawn that the supposed slight acidosis of acclimatisation is in reality only an incomplete compensation of a continued alkalosis due to the increased breathing caused by the anoxæmia.—The Thymus and Tetany, by T. J. Honeyman. Extirpation of the thymus along with the parathyroid in the guinea-pig does not modify in any way the onset of symptoms of tetania parathyreopriva, and it appears unlikely that the thymus secretes or contains any substance capable of producing tetany.—The Hyperglycæmia of Asphyxia and the Part Played therein by the Suprarenals, by C. H. Kellaway. It has recently been denied that the suprarenals play any part in producing the hyperglycæmia of asphyxia. Most of the observations were made on non-anæsthetised cats in which the preferential dilatation of the pupil was used as an index of the output of adrenalin and the degree of asphyxia carefully regulated. It was found that the acceleration of adrenalin secretion and the hyperglycæmia caused by asphyxia both depend on a complex of effects. These results are discussed, and the author concludes that they are mainly due to lack of oxygen, excess of $CO_2$ playing at most a subsidiary part. In both cases the main effects, in anoxæmia of ordinary severity, are due to action on the central nervous system, the splanchnic nerves providing the paths of impulses. When the splanchnics are cut severe anoxæmia still elicits both effects by peripheral action. The increase of blood sugar is only in part caused by the accelerated output of adrenalin.—Carbohydrate Metabolism in Ducks, by G. B. Fleming. Respiratory exchange is influenced by the diet in the same way as in mammals. Injection of adrenalin or removal of the pancreas produces hyperglycæmia. Within half an hour after the injection of adrenalin the respiratory quotient is raised and during the next half hour it falls. The rise in the respiratory quotient after the injection of adrenalin in the fasting animal indicates a mobilisation of carbohydrate, but the persistence of hyperglycæmia after the R.Q. has fallen suggests that adrenalin may cause inhibition of the pancreatic internal secretion. Neither ligature of the portal veins, nor excision of the pancreas, nor the combination of these procedures causes a rise in the R.Q., even when glucose is administered. The evidence indicates that in pancreatic diabetes the tissues are unable to utilise carbohydrate rather than that the liver is the sole seat of metabolic error.—Action of Substances Influencing the Carbohydrate Metabolism in Experimental Beri-beri, by

Casimir Funk. Based on the assumption that the anti-beri-beri vitamine plays an important rôle in the carbohydrate metabolism, a series of substances known to influence this metabolism were investigated. Their action on the blood sugar, liver, glycogen, and amino-nitrogen of the blood was studied, as well as their influence on the onset of beri-beri, duration of life, and loss of weight when administered to pigeons fed on polished rice. Glucose produced practically a disappearance of glycogen, a diminution of blood sugar both in normal controls and in rice diet. In feeding experiments phlorizin seemed to hasten the onset of the disease and increase the loss of weight. Adrenalin has no marked effect on the carbohydrate metabolism; pituitrin was found to be without effect. In feeding experiments only one animal out of six developed beri-beri, and all animals died early with great loss of weight. Thyroid gland produced a considerable sugar increase in the rice series. Hyperglycæmia occurs in pigeons on vitamine-free diet.—Experiments on the Internal Secretion of the Sexual Glands, Especially on Experimental Hermaphroditism, by Knud Sand. The author gives a short account of some experiments which form part of a large monograph published in Danish (1918). Steinach (1911–13) produced transformation of sexual characters in mammals by exchanging the sexual glands, and in 1916 he succeeded in producing a somatic and psychical hermaphrodite animal by subcutaneous ingrafting of both kinds of sexual gland at the same time and on the same infantile castrated male animal. The author's experiments on masculinisation and feminisation were made on rats and guinea-pigs mostly operated on within the first month of their lives. Experiments on transplantation of testes and ovaries are cited. In the ovary experiments the hormone-supplying tissues seem to be the follicles, the theca-lutein, and corpora lutea, and they are able under different circumstances to supply the place of one another in their influence on the female "accidental" (secondary) sexual characters. In experiments on rats on masculinisation hypertrophy of the clitoris was produced, besides the somatic reactions observed by Steinach. Castration of the experimental animal is a condition sine qua non for the ingrafting and efficiency of the heterological gonads, the transplanted organ perishing if castration is omitted. Simultaneous transplantation of a testis and an ovarium on the same castrated infantile animal (guinea-pig) resulted in somatic hermaphroditism combined with a decided bisexualism of the psycho-sexual character, in that the animal showed momentary changes from female to definite male character, according to the animals with whom it was brought into contact. Thus it seems possible to produce an artificial hermaphrodite through simultaneous transplantation of male and female sexual glands on an infantile animal. Experimental hermaphroditism was produced by an artificial ovario-testes method—i.e., by placing the ovaries in the middle of the testes and leaving the latter in their natural position. The ovary grows, matures, and functions well within the testes.—Note on the Permeability of Red Corpuscles for Glucoses and Glucosamine, by Shuzo Kozawa. In man the red corpuscles are easily permeable for blood sugar and in the dog slightly. In the hyperglycæmia of diabetes the volume of the red corpuscles is increased. The sugar content of the reds never exceeded that in the medium in which they were immersed. Human reds are permeable to glycosamine, but those of rabbit, dog, and horse are impermeable.—A Simple Definite Test for Ascertaining the Existence of Functional Cardiac Calcium, by W. Burridge. Hearts stopped in diastole following treatment with oxalates or citrates show a profound and definite change in their mode of reaction to a 5 per cent. potassium chloride solution, due to a loss of the normal functions of calcium. The changed reaction to the potassium solution has never been found in a beating heart, hence it is concluded that every beating heart must contain functioning calcium. It is only when we find this changed reaction that we are justified in assuming the absence of functional cardiac calcium.

*Tubercle.* A Monthly Journal Devoted to all Aspects of Tuberculosis. Vol. I., No. 4. January, 1920. London: Bale's Medical Books and Journals. 25*s.* per annum.—The January number begins with a paper by Dr. Otto May on Some Aspects of the Tuberculosis Problem in Life Assurance, in which the relation of family history of tuberculosis and other conditions to insurance are discussed. Among these conditions is exposure to mass-infection, and a very remarkable case is related on the authority of Dr. J. D. Cochran. A crew of seven, one of whom suffered from cough and spit, embarked on a Shetland fishing-boat and occupied the cabin, 14 ft. square by 6½ ft. high, for the season (May to September, 1909). The whole crew with a single exception died of consumption, and four of them, not including the infecting case, are known to have died within two years—i.e., by the spring of 1911. Nevertheless, Dr. May does not regard contact as necessarily increasing the risk in life assurance; the "contact case" is to be considered in respect of family and personal history, &c., and if these are favourable contact is ignored, otherwise a debt small or large is put on the policy. The paper includes charts showing the ratio of deaths from tuberculosis to total deaths at various ages. These exhibit the well-known heavy mortality in early life and its rapid fall in adult life, which is paralleled by the decreasing risk in assured persons with a previous history of tuberculosis.—Abstracts dealing with the results of artificial pneumothorax treatment form a special feature of this number. According to Sachs's analysis of 1108 American cases, negative results obtain in nearly half, palliative in nearly one-third, while apparently durable results occur in over one-fifth. Considering that the negative results include failures to establish the desired pneumothorax these figures must be regarded as very encouraging, and still better results may be obtained by more experienced selection and technique. In an account of 63 cases observed by Dr. Parfitt and Dr. Crombie of Gravenhurst, Ontario, prominence is given to mishaps, and valuable deductions are drawn therefrom as to prevention, diagnosis, and treatment. These authors, like Dr. Sachs, regard the method as the most effective available for progressive cases (particularly unilateral) in any stage, ordinary hygienic treatment having already failed.—A critical review on industrial phthisis further emphasises the work of Brownlee and points out that the separation of the factors in the causation of tuberculosis in factories is not merely an academic one. "Prevention of the inhalation of dust will be effective in regard to general respiratory diseases and to tuberculous silicosis, but will leave the greater amount of industrial tuberculosis untouched unless the means used to prevent dust inhalation happen to improve general ventilation."—Another critical review deals with State aid for sanatoriums, with special reference to the adaptation of army hutments.—The first of a new series of articles on the tuberculosis classics is devoted to Cornet's scrofulosis, and there follow reports of meetings of the Tuberculosis Society and other gatherings, together with notes on lectures delivered at Brompton Hospital and general news.

*Ophthalmological Society of Egypt, Bulletin of 1919.*—Lieutenant-Colonel H. L. Eason, in a paper on the Epidemic of Ophthalmia among Napoleon's Troops in Egypt in 1799–1801, and of Ophthalmia among British Troops and among Enemy Prisoners in the Egyptian Expeditionary Force, 1916–1918, retells the story of the epidemic of "Egyptian ophthalmia" of Napoleon's time, now generally recognised as having been not trachomatous but an acute purulent ophthalmia such as is seasonal every year in Egypt. The interest of the paper lies in the conclusions drawn from the experience of the recent campaign. Notwithstanding the almost universal prevalence of trachoma among the natives of Egypt, it appears that the infectivity of trachoma among soldiers of clean personal habits is almost negligible, and that ophthalmia of any sort is not a serious danger to an army with modern standards of sanitation. Several other papers are published, showing that the society is very much alive.

# FRENCH SUPPLEMENT TO THE LANCET

*Under the Editorial Direction of*

Professor CHARLES ACHARD, PROFESSOR OF PATHOLOGY AND THERAPEUTICS IN THE UNIVERSITY OF PARIS. AND Dr. CHARLES FLANDIN, D.S.O., CHEF DE CLINIQUE A LA FACULTÉ DE PARIS.

## SOME APPLIANCES FOR THE EXAMINATION OF THE NERVOUS AND MUSCULAR SYSTEMS.

BY DR. JEAN CAMUS,

PROFESSEUR AGRÉGÉ OF THE MEDICAL FACULTY IN PARIS; MÉDECIN DES HÔPITAUX.

THE manifold demands made by the war have forced doctors and physiologists to invent new methods or to adapt old ones to suit new wants. The Grand Palais, a huge centre for functional and professional re-education, which at some periods has been treating more than 3000 wounded men daily, has been the seat of certain physiological investigations which have led to practical applications. The main branches of these researches have concerned themselves with dynamo-ergography, vaso-motor reactions, tremor, and the selection of aviation candidates.

### 1. *Utilisation of Dynamo-ergography in the Study of Disablement.*

Since Marey, the graphic method is the classic way of studying the various muscular movements, and since Mosso, the results of ergography have been well established. It is able to furnish valuable information about work and muscular fatigue, and with many modifications it has been the origin of many publications.

It seemed to me to be interesting to make use of it to gauge the disability of wounded men treated by physiotherapy methods at our centres. These disabilities can certainly be ascertained by instruments for measuring, and I have already described some.[1] But the graphic method seemed also calculated to give most valuable information, as it allows us to measure and register the work done by wounded limbs before, during, and after a time of treatment.

At first I thought of connecting a registering attachment to the large number of mechanotherapy apparatus already in our possession, and by their means registering the work and the fatigue curve of the wounded. But I feared that the transport and adaptation of the registering attachment to various apparatus would meet with great practical difficulties, and I preferred to ask the Boulitte firm to set up two dynamo-ergographs,[2] one of which was to register most of the greater movements of the limbs and the other the movements of the hands and fingers. It was a matter of registering the main natural movements of the limbs, such as flexion, extension, &c., and not the more or less complicated occupational movements, so as to be able to estimate the functional, and not the working, value of a limb.

The general dynamo-ergograph which I have had set up consists quite simply of a lever, the movements of which are transmitted to a pulley to which weights are attached. On pulling the lever the movement of the limb raises the weights, whilst two counters add up the successive elevations of these known weights, so that the total work done is immediately known at the end of the experiment. At the same time the amplitude and number of contractions and the fatigue curve can be seen by means of the registering apparatus. The weights are adjusted to suit the muscular strength of the patient.

The arm of the lever being variable at will, this instrument allows us to ascertain not only the total effort but also its physiological quality by expressing the effort which depends on the arm of the lever and the distance traversed.

The registration of the curve of fatigue is accomplished by means of a manipulator barrel and a registration drum. The apparatus allows us to register the flexion and extension of both the superior limbs, together or separate, and in the same way those of the two inferior limbs and the two feet. The pressure of the hands is registered by means of a bulb firmly grasped in the fist and placed in connexion with a Marey barrel.

The special dynamo-ergograph for the hand and wrist is based on the same principles, and like the general dynamo-ergograph it has one counter which adds up the successive movements of the weights and another which counts the number of movements. This apparatus allows us to register the movements of the hand, wrist, and fingers in positions intermediary between complete pronation and complete supination. It also allows us to register abduction, adduction, and to take the pulse, and that on either side.

These two apparatus allow us (1) to establish the quality of the movements of the limbs, their strength, rapidity, and amplitude, the work done and the fatigue caused; (2) to follow the progress made during the treatment; (3) to detect malingering; (4) to evaluate functional disablement for work with a view to pensions and allowances.

The occurrence of malingering has often to be considered in the case of wounds as well as of industrial accidents. The diversity of the movements and their registration are bound to make malingering difficult. In the whole course of the exercises the malingerer must inevitably introduce discrepancies in force, amplitude, and duration, and these discrepancies become proofs against him. Moreover, with the help of a simple attachment it is easy to produce electric excitations in the course of the exercises, which allow of a further judgment as to the value of the muscular contractions.

Since Mosso it is well known what a distinctive appearance and individuality the ergographs possess and how hard it is for a man to simulate a fatigue curve when the registering apparatus is withdrawn from sight. But it is important to add that inconsistencies in the ergographs are not always a proof of simulation or of want of goodwill on the part of the patient. When there is pain at the beginning of the work, or when it appears as a result of the work, it disturbs the appearance of the ergographs. It is therefore necessary to investigate clinically under different conditions whether the sensitiveness of the wounded men who are tested has been affected.

The uses of the appliance which we have just briefly described are fairly numerous. In particular it can be seen how it can serve to study the comparative value of prosthetic appliances by examining the quantity and quality of the muscular work

[1] Société de Biologie de Paris, May 29th, 1915; Archives de Médecine et de Pharmacie militaires, March, 1916.
[2] Société de Biologie de Paris, Oct. 9th and Dec. 18th, 1915, vol. lxxvii., pp. 520-742.

obtained by their aid. It can obviously also be used to estimate the results of surgical operations by registering the movements before operation and some weeks after it. Following out this idea, MM. Nepper and Vallée have studied three different cases in our laboratory, some record of which may be found in Dr. Valée's thesis.[3]

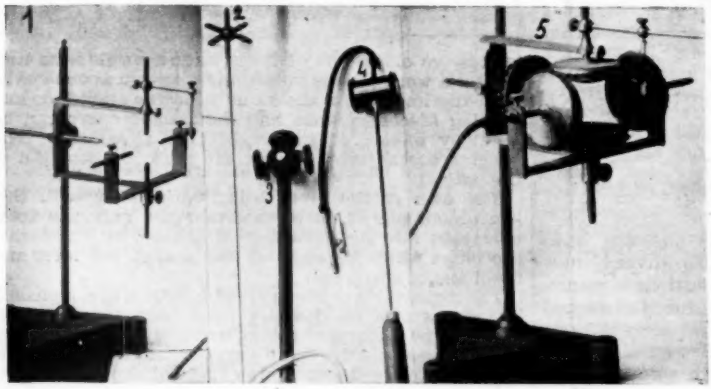

FIG. 1.—Various appliances for the study of tremor. *1*, Apparatus to be used with the drums *3* and *4*. *2*, Apparatus in which the hand or the rod *2* is introduced.

### 2. *Study of Vaso-motor Reactions.*

Wounds are a frequent cause of vaso-motor troubles, and, moreover, the variations in vaso-motor reaction deserve to be studied as evidences of the degree of an individual's susceptibility to emotion in various circumstances, in the case of patients where trephining has been resorted to, candidates for the flying service, &c.

To facilitate this study I have had a small apparatus made, consisting of an exploratory tube formed of an interior metallic framework, to which an indiarubber finger-stall is attached. This exploratory tube, which is otherwise hermetically sealed, communicates by means of an indiarubber tube with a very sensitive Marey drum. The sensitiveness of the exploratory tube may vary with the thickness and tension of the rubber used. This tube is applied to the palmar face of a finger, whilst a larger tube serves to register the pulsations in the plantar face of the great toe. It is also possible to get good records by means of a tube with two sensitive surfaces placed between the lateral faces of two fingers. The circumstance that by this last method the pulsations of the digital arteries are registered does not constitute a source of error, for these small arteries of muscular type are subject to the same influences which operate on the vaso-motors. The exploratory tube is held in place by two metal plates joined by four tension screws, which allow of its being pressed more or less closely against the surface of the fingers. This affords an easy and rapid method of regulation and produces good records.

[3] Published by Baillière, Paris, 1916.

The precautions usually taken when registering vaso-motor modifications must, of course, not be neglected. The subject must be at rest in a well-warmed room. It is also desirable to have the hands or feet, whichever are to be explored, in surroundings at a constant temperature. For this purpose I have used one of the electrically warmed pieces of textile fabric sold under the name of electric cataplasms.

With two apparatus of this kind it is possible to register the fingers of both hands at the same time. This device has provided me with diagrams of great amplitude showing very clearly variations caused by different influences originating at the periphery or at the centre. But like the other appliances it falls short of invariably giving satisfactory results, since numerous subjects produce graphs of very little use in spite of the very best appliances and preparations, either because they are under the influence of cold, or emotions, or for some other appreciable cause.

The registration of vaso-motor reactions in man always remains a delicate affair, in spite of the use of newly made thin rubber membranes and of the very sensitive Marey drums.[4]

### 3. *Study of Tremor.* (Figs. 1 and 2.)

A fairly large number of soldiers present symptoms of tremor, due to wounds of the nervous system, or concussion, or emotion, or other clearly determined cause. It was of interest to register and try to differentiate these tremors. For this purpose I used various devices. One of the simplest is formed of a very sensitive drum, which has at its centre a small metal plate to which a long metal rod is screwed. This rod is placed in or on the subject's hand, which may take up several positions successively, pronation, supination, or any intermediary position. The drum is connected with a registering drum.

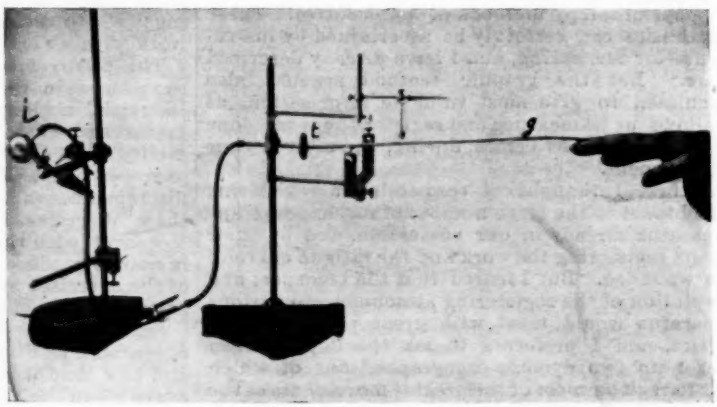

FIG. 2.—Simplest appliance for the study of tremor. *t*, Very sensitive drum bearing the rod *g* screwed on centrally, and transmitting the tremor of the hand. *t*, Registering drum.

[4] Appareil pour l'inscription des modifications vaso-motrices chez l'homme, by Jean Camus, Société de biologie de Paris, June 3rd, 1916, vol. lxxix., p. 525.

Another device is formed of drums between which one can introduce the hand or an arrangement like the spokes of a wheel. This apparatus gives horizontal, vertical, and antero-posterior tremors, which can be registered separately or conjointly by uniting the drums in various combinations by means of tubes with several ramifications.

In a third device the five drums, instead of being fixed, are mobile and attached to a series of hollow rigid tubes, held like a bundle in the hand of the subject. Rubber tubes leading to the registering drums start from these hollow tubes. During the tremor the sensitive membranes of the five drums (two vertical, one superior and one inferior; two horizontal, one to right and one to left; one as far antero-posterior as possible) strike against small rigid rods fixed in proximity to them.

These devices insure the correct registration of the various forms of tremor, even the slightest, such as the normal tremor which exists in everyone.[5]

A very large number of good graphs taken with the first apparatus described above have been published in the important thesis by Dr. Binet, which comprises a detailed study of the various modalities of tremor.[6]

4. *Device for the Selection of Aviation Candidates.*

My laboratory established in the Grand Palais has allowed me to study the question of the selection of aviation candidates. In 1915 Dr. Marchoux, at that time chief medical officer of the Fortress of Paris, had asked me to investigate the aptitude of men wishing to become pilots by means of the physiological methods employed by me at the Grand Palais. The researches undertaken were pursued and brought to a very high pitch of perfection with the collaboration of Dr. Nepper, who unfortunately died in the course of the last influenza epidemic. We gave a first description of our method in the *Paris Médical*, March 18th, 1916. This method comprises two parts: 1. Measurement of psychomotor reactions with the aid of d'Arsonval's chronometer. 2. Registration, by the graphic method, of respiration, the cardiac rhythm, and the vaso-motor variations of the tremor considered as capable of revealing the emotivity of the subjects under investigation.

I was guided by the idea that it was useful not only to find out the rapidity of the psychomotor reactions (visual, auditory, tactile), but that it was also important to know the value and duration of the emotivity reactions called forth by a series of tests. Both parts seemed necessary, and I considered that they must be complementary to each other.[7]

As a matter of fact, a subject who has rapid psychomotor reactions may possess excessive emotivity, which he is unable to master, and is in consequence a bad aviator. Another may have very slow psychomotor reactions, too slow for him to be a good aviator.

Either alone or helped by several medical men (MM. Arrous, Binet, Turlais, Vallée, &c.), my collaborator carried out a huge number of examinations of aviation candidates. In his practice he soon gave up the registration of emotivity reactions, retaining only the measurement of psychomotor reactions, to which we had added, on the advice of our master, Ch. Richet, the idea of mean deviation. I cannot say whether this simplified method is enough, but for the reasons given above I do not think so, since to my mind the two parts of the device must be complementary.

From the facts which I was able to verify in collaboration with Dr. Nepper, and from those far more numerous ones verified by himself alone, it follows that in extreme cases the method described gives satisfactory results which are entirely in its favour. The very good aviators, the well-known "Aces," gave excellent psychomotor reactions and either feeble or completely controlled emotivity reactions. Inversely, persons who are ill or wounded in the head, and particularly cases where trephining has been carried out, who should theoretically be little adapted for flying, have provided bad psychomotor reactions and excessive and prolonged emotivity reactions.

The method described is doubtlessly susceptible of improvement, and may, perhaps, also be open to criticism—for example, it should be easy to add to our original method some more or less complicated tests of judgment, by provoking, or omitting to provoke, emotions during these tests. On the other hand, a critical study might be undertaken by using the method for the examination of a large number of pilots, who may be either very good, or good, or still mediocre pupils, at the beginning, in the middle, and at the end of their pupillary stage. Attention might equally be given to the degree of perfectibility of the subjects.

The war has given aviation a surprising impulse, but it is only at its beginning, and the future of aerial locomotion appears to every eye to be nearly without limits. It is very desirable that the recruiting of pilots should be treated with the utmost gravity and that comparative studies of selective methods should be undertaken in all countries.

[5] Présentation d'appareils pour l'étude du tremblement, by Jean Camus, Société de Biologie de Paris, Feb. 3rd, 1917, vol. lxxx., p. 164.
[6] Published by Vigot, Paris.
[7] Société de Biologie de Paris, vol. lxxxii., 1919, No. 19.

## THE LAWS OF TREMOR.

BY DR. LÉON BINET,
INTERNE DES HÔPITAUX, PARIS.

BY using a sensitive appliance, Marey's graphic method allows us to study and analyse tremor and to investigate the laws which govern this phenomenon. With this aim in view we have availed ourselves of the apparatus devised by our master, Jean Camus,[1] consisting of a very sensitive drum bearing at its centre a small plate, to which a metal rod is screwed. This metal rod is the exploring organ, which is applied to the region to be studied and attached to it by a string. This first drum (called the explorer) is connected with a second drum (called the receiver), the needle of which moves over the surface of a cylinder, where it also registers the time in seconds. Records thus obtained[2] show that it is necessary to distinguish physiological tremor from pathological tremor. It is the former that we wish to dwell upon now.

A. *Physiological Tremor.*

All normal subjects reveal a tremor which disappears only when the part of the limb under investigation is in a state of complete rest, totally relaxed, on a resisting plane. This tremor is general, and consists of nine oscillations per second in the case of the tongue, eight to nine in the upper limb, and five in the lower limb. These oscillations vary in amplitude, and the examina-

[1] Jean Camus: Présentation d'appareils pour l'étude du tremblement, C.R. de la Société de Biologie, Feb. 3rd, 1917, p. 164.
[2] Léon Binet: Recherches sur le tremblement, Paris, Vigot, 1918.

**tion of the records allows us to distinguish two types: an unstable type (irregular oscillations) and a periodical type (recalling the periodic Cheyne-Stokes respiration). Physiological tremor presents variations the study of which permits of the description of the laws of tremor.**

B. *The Laws of Tremor.*

1. *Tremor calls forth tremor.*—Let us take the record of the normal tremor of a subject by means of the registering appliance described above; then let us order him to tremble voluntarily. If the patient is finally instructed to stop his voluntary tremor, the record shows that it continues to imitate the intentional tremor and is entirely different from the original record.

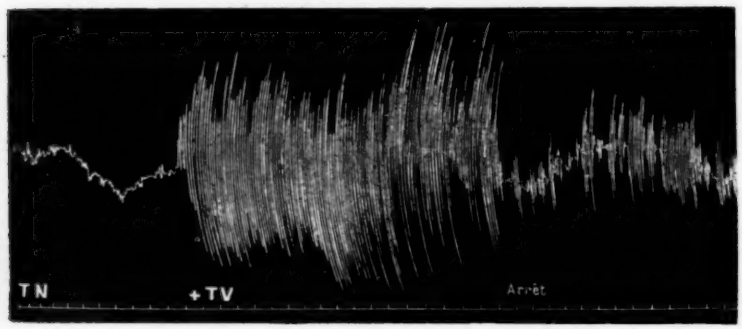


FIG. A.—Tremor, at first normal, then voluntary, and finally arrest of the voluntary tremor. (Tremor calls forth tremor.)

2. *Tremor increases as the result of muscular contraction and becomes exaggerated under the influence of work.*—Dynamic work increases tremor, first in that part of the body which has worked (*law of unilaterality*), then in the opposite member (*law of symmetry*), and finally becomes general (*law of generalisation*).

Static work (maintaining a weight in a raised position) exaggerates the tremor, the increase of which is a function of the resistance of the member under observation, so that we have in it a proof (proof of tremor) which allows us to compare clinically the functional value of an unsound member by comparison with that of a sound member (investigation of cases of myopathy[3]), wounded limbs, encephalic wounds with peripheral motor disturbances.[4] Intense and prolonged mental work exaggerates the oscillations.

We see, then, that work in any form increases the tremor, and experience shows that tremor reacts on the work, for, owing to the fact that a subject trembles, voluntary contractions become less rapid and less frequent. We have there an interaction of evil processes which affects injuriously the proper output of the human motor.

3. *Tremor increases in consequence of emotion.*—Whilst the tremor record of a subject is being taken, fire a blank charge in a revolver and examine the tracing made. After the lapse of several seconds (from 4 to 20) an increase in the tremor will be noted. This increase is progressive, as if an intense tremor had been unmoored and was destined to be entirely let loose. The intensity of this tremor is a function of the "coefficient of emotivity," of the "threshold of emotional excitation," of the subject under examination.

4. *Tremor may be modified by respiration.*—Charles Richet's beautiful experiments[5] on dogs anæsthetised by chloroform, cooled to 34° C., demonstrate the existence of a shiver, which is at first limited entirely to inspiration and later on is continuous, but exaggerated at the time of inspiration. A similar fact may be observed—exceptionally, it is true—in the case of human beings. One patient under examination showed a clear exaggeration of tremor whenever he made a forced inspiration.

5. *Tremor is exaggerated under the influence of cold.*—It is a matter of common observation that we tremble when we are cold, and this thermic shiver in the dog has been studied at length by Charles Richet. The human being presents a similar thermic shiver caused by the impression of cold, having a cutaneous starting-point and a muscular end-point. The trembling may be general or partial, but it has an obvious predilection for the masticatory muscles, due to some peculiar sensitiveness of the mastication centre.

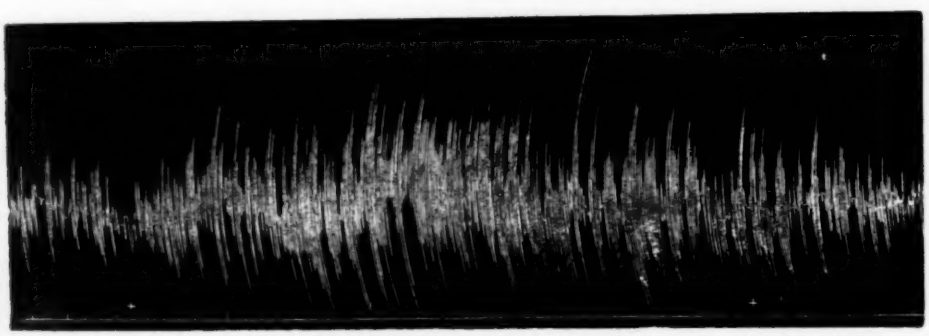

FIG. B.—Influence of mental work on tremor. (The subject under examination works mentally between the two crosses.)

6. *Tremor is modified by peripheral impressions.*—Painful impressions received on the periphery increase tremor very noticeably. It is well known that in the case of animals Claude Bernard demonstrated a general tremor on galvanising the central end of a cerebro-spinal nerve. In human beings the painful exploration of a wound or the moving of an affected articulation sets up manifest tremor. On the other hand, certain actions carried out on the periphery have a diametrically opposite effect. Thus ocular compression brings about the arrest of a rigor (oculo-motor reflex[6]), and one can notice the rigor of infectious fever and the tremor of neuropaths lessen in a marked way under the influence of pressure on the eyes.

[3] Ch. Achard and Léon Binet, Recherches biologiques dans un cas de myopathie progressive. Bull. et Mém. de la Sté. médicale des Hôpitaux de Paris, June 21st, 1918; Archives de Médecine expérimentale et d'Anatomie pathologique, 1919.

[4] Léon Binet: L'examen des blessés de la tête par des méthodes physiologiques, Revue interalliée pour l'étude des questions intéressant les mutilés de la guerre, No. 2, June, 1918.

[5] Charles Richet, article "Frisson" in Dictionnaire de Physiologie, vol. vi., p. 845, 1904.

[6] Ch. Achard and Léon Binet: Les effets de la compression oculaire, C.R. de la Soc. de Biol., Feb. 23rd, 1918, p. 158; Archives de Médecine expérimentale et d'Anatomie pathologique, June, 1918 (with records).

# THE LANCET.

*LONDON: SATURDAY, JANUARY 31, 1920.*


## The Voluntary Hospital System.

A STORY is told of a draper who, in the olden days before the war, sold pins and bric-à-brac below cost price, but made a profit by selling a great quantity. That is the position of the voluntary hospital to-day; the number of its patients steadily increases, it loses a little on each of them, and the treasurer has no luxury department to blind him, by its large profits, to the fact that little losses indefinitely multiplied make adverse balance-sheets and ultimately large overdrafts. The draper could rejoice in what looks like suicide, because, while bankruptcy was avoided, the sale of luxury articles would save him. Between 1913 and 1918 the occupied beds in 109 London hospitals increased from 9766 to 11,566, and the ordinary expenditure, after allowing for reimbursement on account of naval and military patients, rose from 1143 to 1611 thousands of pounds. In regard to provincial hospitals, a casual dip into our news columns this week will show that the Leeds Infirmary has an annual deficit, in round numbers, of £26,000, and a bank overdraft of £39,000 which would have been much greater but for a generous donor of £50,000. At the Norfolk and Norwich Hospital the cost per in-patient has risen from £4 13*s.* in 1913 to £8 13*s.* 6*d.* in 1918. It is a topsy-turvy sort of business, in which the larger the turnover the greater is the loss. And unless something is done, bankruptcy is not far distant.

At this point Sir ARTHUR STANLEY steps in with an optimism which nothing can daunt, and which certainly found its justification in the experiences of the Red Cross during the war. Given the proper machinery for collecting money and convincing evidence that the money is put to a good use, he is sure that the public will voluntarily find the money. Not the same class as found it in 1910, for then it was the bourgeois with enough and to spare from moderate salaries, and they have now as much as they can do to keep afloat at all. But less than 9 per cent. of the population, according to Sir HENRY BURDETT, then contributed to hospitals at all, and Sir ARTHUR STANLEY proposes to tap the working-class population by voluntary levy of so many pennies per week. Taking 300 hospitals of 150 beds each, that is 45,000 beds, at an annual cost of £150 a bed, it is not difficult to see that the 6¾ million pounds required each year, of which not more than a third is covered by endowment, would be amply raised from a population of 40 millions, each of whom contributed 1*d.* a week. And in the Newcastle area a suggestion to the miners that their present contribution of 1*d.* a week should be doubled has met with a ready response. The Red Cross, as will be seen on p. 278, has put its unrivalled collecting machinery, which has never broken down although now arrested for overhauling, at the disposal of the voluntary hospitals, and has offered the whole-time services of Sir NAPIER BURNETT, of auxiliary hospital fame, to set the machine going. He may be able to reassure the private donor. Certain spinning towns, which scarcely make a secret of their opulence, would finance their own voluntary hospitals generously but for uncertainty as to State control. How these would-be givers can misinterpret Dr. ADDISON'S repeated assurance it is difficult to understand; the Ministry of Health has more sense than to interfere with institutions efficiently financed and run. It is believed that it will refuse to allow municipal bodies to borrow money for hospitals in places where private enterprise is active and enlightened.

One condition, and one only, is attached by the Red Cross to its offer of help, and it is a condition which the British Hospitals' Association is as keen to ensure as the Red Cross is to impose. Efficiency and economy must be the watchword of hospital administration. There is no complaint—there never has been—of the devotion of the voluntary officers, medical and otherwise, attached to the particular hospitals, but there has been a lamentable lack of coöperation between hospital and hospital, and nowhere a proper county scheme. Sir NAPIER BURNETT, who recently undertook a general hospital survey in the north-eastern area, which covers 2 million acres and 2½ million people, found a hospital (general and special) bed-rate of ¾ per 1000 of population, with some 3000 names on the waiting list. The area provides precisely the same number of beds for infectious diseases as for all other diseases and accidents. There are double the number of beds in Poor-law infirmaries, of which only about one-half are occupied. A scheme is afoot for collecting £100,000 for a war memorial hospital to be erected a stone's-throw from a spot where lie empty 200 infirmary beds; which could readily be separated from the workhouse. Verily, all is not well with coördination. Sir NAPIER BURNETT has wise things to say concerning remedies, especially in the direction of a great development of the convalescent hospital, in which the annual bed-cost should be less than one-half of that in the general hospital. We may hope much from a hospital survey of the whole country carried out with sympathy and imagination. Mr. BASIL MAYHEW'S plea for a strong committee to be set up in each county, to adopt a definite hospital scheme under the guidance of a single central coördinating body, has much to commend it. In the meantime, with the help of the Red Cross the voluntary hospital system may be able to carry on through the lean years of reconstruction. We hope it will. But it will require a strong pull with all the forces balanced by intelligent administration.

## The Increase of Criminal Abortion.

IT is to be hoped that the sentences passed by Mr. Justice DARLING upon three criminals at the Central Criminal Court, and the terms in which he addressed the prisoners, will have been closely studied by all persons engaged in the trade of the abortionist, and also by the police authorities, who should be encouraged in every effort to stamp out that trade. A man named GARDNER pleaded guilty to using an instrument to procure the miscarriage of a woman named SMEDLEY, and two other men—EASSON and TITMAN—pleaded guilty to aiding and abetting him. In another case GARDNER and EASSON were found guilty of the manslaughter of a woman, GARDNER by performing an illegal operation, and EASSON by aiding and abetting him. The men were sentenced, GARDNER to ten years' penal servitude, being described by his lordship as a "professional abortionist," EASSON to penal servitude for two concurrent periods of five years, and TITMAN to 18 months' imprisonment with hard labour.

Mr. Justice DARLING, dealing with the general aspects of the serious crime of abortion, in passing sentence, said: "There are those who write about what they call 'race-suicide.' The term does not matter. But a country which permits its population to be dealt with in this way is bound to decay. Those who have as many enemies as the British Empire must for their own safety have plenty of children to meet those enemies in the gate. We have many gates to defend; therefore it is that the law for that and other reasons makes these practices penal and awards a heavy punishment for them." In sentencing GARDNER his lordship told him that he was fortunate in not having been convicted of murder. He thought it high time that a man who had killed a woman, as GARDNER had done, and had practised abortion over and over again, should be convicted of murder and hanged, adding that if he had been so convicted not a word would have been said by the court to save him from the gallows. His lordship dwelt further upon the proof, supplied by the case, of the increase of the practice of abortion during the circumstances produced by the war, the public conscience being dead with regard to it. He referred to evidence given by the prisoner TITMAN, a former clerk in the Army Pay Office at Winchester, that pregnancy and how to procure abortion were common topics of conversation among the young men and women working there. Of EASSON (described as a masseur) Mr. Justice DARLING said that he was employed in a shop in Villiers-street, stated to belong to a man named NATHAN, who seldom went there himself. The business carried on was mainly in "regulators," medicines, pills, and appliances the object of which was obvious. Of the pills his lordship said that it was believed by those who bought them that they were capable of procuring miscarriage. They were sold at 10s. a box, and if they failed in their purpose were labelled "double strength," and sold at £1 a box. Of TITMAN his lordship said that in spite of his youth he was thoroughly debauched and immoral. Certainly in three or four cases he had been the means of introducing young women to the nefarious practices carried on, and EASSON had said that some of them came to the shop in their various uniforms.

If the trial, which Mr. Justice DARLING has thus brought to an issue beneficial to the public, is to bear any fruit, its result should be the closing of other places of business of the kind described. They are perhaps not so conspicuous as they were a few years ago, but the police must be aware of many of them. The trade in alleged abortifacients cannot be carried on without a certain amount of advertisement, if it is to be on a profitable scale, and the window of the shop where "regulators" are sold is generally filled with articles and papers clearly indicating the class of customer for which it caters. But though anyone can see what is going on, prosecutions may be hard to start. Women who desire to avoid the burden of maternity are not often willing to be witnesses to criminal practices in which they have been participators, and even those most antagonistic to the employment of the *agent provocateur* may regard her or him as indispensable in the circumstances. The greed of the trader of this class upon public credulity will almost certainly cause him to supply, on mere application, documentary evidence such as will admit no denial of his guilt. Death from procuring abortion probably does not occur so frequently as formerly in proportion to the number of illegal operations conducted, for the importance of aseptic conditions and the means of obtaining them are more widely known than they were; but this increases the necessity of detecting the abortionist, even though he has to be, as some persons would say, entrapped.

## The Last Report (Medical Supplement) of the Local Government Board.

THE Annual Report of the Local Government Board for 1918–19 is accompanied by the supplementary report of the Medical Department of the late Board for the period. The document is submitted by Sir GEORGE NEWMAN, the Chief Medical Officer of the Ministry of Health, who was appointed in 1919 as Principal Medical Officer of the Board in succession to Sir ARTHUR NEWSHOLME; the medical supplement is the last of a famous series which began 64 years ago under the Joint Board of Health, which had been instituted in 1848. The series was continued under the Medical Department of the Privy Council, and, finally, from 1871 until this last document, was issued by the Local Government Board. In a letter to Dr. CHRISTOPHER ADDISON,

the first Minister of Health, Sir GEORGE NEWMAN introduces the Report by recalling the work of his predecessors in office, calling special attention to the broad principles of State medicine initiated by Sir JOHN SIMON, Medical Officer to the Privy Council from 1855 to 1876, and alike the father of scientific preventive medicine in this country and the pioneer of similar activities throughout the civilised world. Recognising that the publication of this Report closes an epoch, Sir GEORGE NEWMAN calls attention to the fact that the Local Government Board from 1871 to 1919 gave to the nation, not only in this series, but in the actual work behind the reports, a method consisting of "a combination of scientific work and common-sense administration both associated with a wide and comprehensive vision." That is a perfectly just claim, and leaves no need for addition.

The Report itself, which has been prepared by Dr. G. S. BUCHANAN and Dr. R. J. REECE, respectively First and Second Medical Officers to the late Local Government Board, follows generally the lines of the reports emanating from previous heads of the department; but in view of the termination of the Local Government Board as a Department of State, upon the creation of the Ministry of Health, no such complete survey has been given, as in some of the earlier documents was thought necessary. The present Report is mainly concerned with notes and records regarding certain infectious diseases, and with a chronicle of the work done during the last stages of the war for the prevention of tuberculosis, the control of venereal disease, the administration of port sanitation, the inspection of food, and, especially, the care of children and nursing mothers. These are all matters in which it is important to maintain continuity of record, and the information compiled under the various headings is valuable in its authoritative and concentrated form. The history of the great epidemic of influenza, contributed by Dr. T. CARNWATH, and representing the views of the epidemiologists of the bureau, is a thoroughly useful contribution. The difficulty of preventing the spread of a highly infectious and rapidly developing disorder is indicated by the circumstances detailed. The disease first attracted the attention of local authorities in England in June, 1918, but this appears to have been later than the date at which cases occurred in Spain, in Japan, in the United States, and in certain of our own naval and military bases; so it was surmised that in many places the first English cases occurred in association with soldiers or sailors convalescing or home on leave. By the middle of July what had now become an English pandemic was at the top of its severity, and Dr. CARNWATH illustrates the incidence and its results by curves which display the behaviour of influenza in different centres of population. These curves show well the autumn fall and the second epidemic at the end of the year 1918, the crest of this second wave being reached on Nov. 9th, when over 7000 deaths from influenza were registered in "the 96 great towns." The contradictory features of the disease, as it manifested itself in various and separated localities and in age and sex groups, bring Dr. CARNWATH to the hypothesis that there are several strains of influenza virus and that these vary in virulence and antigenic potency; but the hypothesis is only put forward as one that most nearly reconciles conflicting evidence, and the essential message emerges that influenza is a crying subject for organised medical research.

Dr. BUCHANAN is responsible for the section on epidemic diseases in this country associated especially with war conditions—namely, malaria, dysentery, and such louse-borne diseases as typhus and trench fever. A great deal of the general information under all three headings has been published in THE LANCET in the form of reviews of reports issued by the Local Government Board for the information of the public, and the section shows how alert the authorities were to prevent conditions which were inseparable from those of war spreading from our sailors and soldiers to the civilian population. With regard to louse-borne diseases, so good a system of cleansing was carried out that infestation by vermin has been of the rarest occurrence in the homes of the returning army—among sailors, of course, no such risk existed. There has been no material increase in prevalence of lousiness among our general population. The possibility of bacillary dysentery must still be kept in mind; while the occurrence of any sudden severe gastro-enteric attack should be noted, the amount of danger attaching to amœbic infection in this country still needs determination. The question of the spread of malaria remains under close observation, and practitioners should remember that at the Ministry of Health all help will be given. If doubt arises as to any case or group of cases, it is important that the specialised assistance of the department should be sought.

## The Limit of Standardisation.

A RECENT issue of the *Journal of the American Medical Association* contains a plea for the standardisation of laboratory tests. It is pointed out how easily confusion may arise in the interpretation of the results obtained with complicated biological and biochemical reactions, especially when numerous modifications of any one test are used in daily practice. Figures presented by different observers, and presumably purporting to represent the same thing, may not be comparable unless the same methods have been used or, if the methods vary, unless an exact comparison has previously been made. This applies, perhaps, with more force to the Wassermann reaction than to any other laboratory diagnostic method, though the same may be said of most of the difficult modern tests. The hard position has long been recognised, and attempts have been made to obtain agreement as to what shall constitute standard conditions. In

this respect we are perhaps somewhat ahead of our American colleagues. Professor DREYER'S attempt to put the agglutination reaction on a quantitative basis is an example of the kind of work which, we take it, the American journal would like to see done. Perhaps the admirable series of reports now being issued by the Medical Research Committee on the "Standardisation of Pathological Methods" will lead to an improvement in the general reliability of laboratory work. The reports already issued by the Committee include one on the method of standardising bacteriological media—a matter obviously of first-rate importance—one on the laboratory diagnosis of gonococcal infections and the detection of spirochætes, and two on the Wassermann reaction and its diagnostic value. They are written by experts in each subject and contain the detailed information which even the largest text-books omit for want of space. Incidentally, chemical manufacturers have an unrivalled opportunity of supplementing such work—and of reaping large profits—by supplying chemicals of guaranteed purity.

All this work is to the good, but it should not be forgotten how near it approaches to dangerous ground. Beyond certain limits we trench upon a question of fundamental importance in science, that of the foundation of authority. We may unify the simpler methods, which are based on precise knowledge, and no harm follows. Indeed, the general tendency is towards simplification as our knowledge of principles grows. But attempts to bring about complete uniformity in the technique of biological reactions, which are yet only partially understood, would hinder rather than help progress. Standardisation must have behind it work which has been often verified and is generally accepted; and original work must not be limited by any suggested rule. It is still beyond the wit of man, or of committees, to devise any scheme which shall absolve us from the necessity for critical reading and study. So in the end each man must make his own choice out of the multiplicity of methods open to him.

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THE Mary Putnam Jacobi Fellowship of $800 (about £200) is offered by the Women's Medical Association of New York City for post-graduate study in any country to any woman physician for work in any medical science. For full particulars apply Dr. C. M. Murrell, 86, Porchester-terrace, London, W. 2.

UNIVERSITY OF CARDIFF.—Sir Edward Sharpey Schafer visited Cardiff recently and delivered an interesting address in the large lecture theatre of the new physiological department. He discussed, very appropriately, the construction of laboratories and hospitals of medical schools, and pointed out the inexpediency and folly of placing such buildings in great cities on confined and expensive sites with no room to expand, except at prohibitive cost. He advocated and illustrated the American method of obtaining, while land is reasonably cheap, a campus far beyond all immediate requirements. He pointed out that local authorities are longer lived than the men who at any time constitute them, and that they must plan ahead for 200 years or so, otherwise their reputations will suffer at the hands of future generations, who will have to shoulder their mistakes, instead of inheriting the fruits of their foresight. The address was listened to with interest by a receptive and representative audience.

# Annotations.

"Ne quid nimis."

## PREPARATIONS FOR AN INFLUENZA EPIDEMIC.

THE Ministry of Health has issued an intimation to the public of the possible recrudescence of influenza in this country, resuming a Memorandum issued in December last to Local Authorities. The facts reaching the Ministry from sporadic sources in England and Wales, as well as the prevalence of the disease in Japan and India in the east, and in the United States in the west—to say nothing of reports from Central Europe—make it probable that an epidemic may again develop in this country. Readers of THE LANCET will recall that early in November last Dr. John Brownlee, the Director of Statistics at the Medical Research Committee, suggested that an epidemic could be anticipated, by a right reading of the figures, somewhere about the end of January. The prediction was made tentatively, the capricious behaviour of epidemics being noted, and Dr. Brownlee tied himself down to dates in no close manner; but he gave a warning which should not have been neglected, especially in view of the Memorandum of the Ministry of Health.

The advice now given by the Ministry to the public, to the Local Authorities, and to those who will have charge of the sick will be found summarised below. It is in essentials an insistence upon counsel that has been previously issued; therefore we may trust that the warning is being addressed to enlightened hearers, who may have already considered in advance the procedure which should be adopted if the day of trial arrived. Under the heading of prophylaxis nothing very definite is said by the Ministry upon the value of inoculation, nor can medical science expect a pronouncement. We are dealing with a disease whose actual causal agent, or combination of agencies, is unknown, though considerable evidence exists, emerging from the 1918 epidemic, that inoculation has done good work in certain groups of cases. It is obvious that in this direction wide as well as concentrated research should be undertaken. The problem is a difficult one, and to stop out many of the sources of error which are present will require great industry and logical powers. Now is the time for their application, with past facts recorded recently and new ones arriving.

Although the latest official returns do not indicate any ominous or sudden increase of deaths attributable to either influenza or pneumonia of an infectious type, the Ministry of Health, drawing special and public attention to its recent Memorandum, reminds us of the infectious nature of incipient influenza. The following advice, not for the first time, is given to the public, the patients, and those who have charge of them:—

*Prophylaxis.*

Infection may be guarded against by:—

Healthy and regular habits and avoidance of fatigue, chill, alcoholic excess, crowded meetings, hot rooms, and unnecessary travelling. There should be good ventilation in working and sleeping rooms, and warm clothing should be worn. Gargling is recommended from a tumbler of warm water, to which has been added enough permanganate of potash to give the liquid a pink colour. A vaccine against influenza has been prepared by the Ministry of Health and is available for general use, following the War Office procedure.

It is issued to medical officers of health for distribution free of charge among doctors, and any person who wishes to be vaccinated should apply to his own practitioner. To obtain its value the vaccine should be used *before* the epidemic occurs. The procedure is not necessarily protective, but it may lessen the risk of the dangerous ensuing complications.

*Advice to Patients and Nurses.*

**In the event of an attack of influenza the patient is advised to adopt the following measures to secure rapid recovery without complications:—**

At the first feeling of illness, or immediately on a rise of temperature, the patient should leave his work, go home, and go to bed; he should keep warm and should send for the doctor.

On convalescence the patient should avoid meeting-places and places of entertainment for at least one week after his temperature has become normal. Recovery should be fully established before return to work.

**Persons nursing influenza patients are instructed that the sick should occupy a screened-off bed or a separate room until the temperature is normal. Though warmth should be secured, ventilation should be free. Inhalation of the patient's breath or contamination from sneezing or coughing should be avoided, and the hands washed after contact.**

*Advice to Local Authorities.*

**Local Authorities are urged to consider *in advance of an epidemic* the advice issued in the Memorandum, stress being laid upon the following:—**

The immediate appointment of an emergency committee.

Scheme for coöperation with medical practitioners and voluntary health workers.

Provision of nursing.

Subdividing the district for anti-influenza work.

Provision of home helps.

The utilisation of the local authority's staff.

Emergency hospital provision.

The prevention or mitigation of overcrowding, especially in public vehicles.

Workers who are obviously ill should be sent or taken home at once.

**The vaccine, prepared by the Royal Army Medical College and supplied by the Government Lymph Establishment (Colindale-avenue, The Hyde, London, N.W. 9), is issued gratuitously to medical officers of health and through them to medical practitioners who desire to use it. They are requested to keep careful notes in respect of each person inoculated, of the name, address, sanitary district, age, sex, dates of previous attacks of influenza, date of present inoculation, and subsequent history, so that trustworthy figures may be obtained as to the results of inoculation.**

*Action in Advance.*

**The Ministry of Health announced on Thursday morning that during the months in which the country has been free from epidemic influenza the investigations into the circumstances and conditions which lead to a spread of the disease have been conducted, so that, should another epidemic occur within the next few weeks, it will find the country better equipped in respect both of theory and practice to meet the attack. They state:—**

The Ministry keep a constant watch on the occurrence of influenza at home and abroad and have put themselves in a position to observe closely the progress of any epidemic wherever it may occur. Information is derived from returns as to epidemics obtained from Consular Agents and from other official sources all over the world. As regards the prevalence of the disease at home, information comes from the weekly returns of influenza mortality in the 96 great towns issued by the Registrar-General, and from returns of cases of acute influenzal-pneumonia, the notification of which is now obligatory on all medical practitioners in England and Wales. Returns of cases of influenza are also furnished voluntarily every week by a number of schools, institutions, and representative industrial firms throughout the country. All data on the subject, statistical as well as scientific, come before an Influenza Committee, which is a Medical Standing Committee of the Ministry of Health, holding frequent meetings, and on which sit representatives of the various Medical Departments in Whitehall.

A vaccine against influenza has been prepared by the Ministry and is now being issued on demand to medical officers of health for distribution, free of charge, among medical practitioners within their districts. It is not guaranteed that this vaccine will in all cases necessarily protect from attack, but the experience of the military authorities, and of the eminent bacteriologists consulted by the Ministry, justifies the belief that the use of this vaccine will, in many cases, actually protect from attack, and should such attack occur the person who has been vaccinated beforehand will be less exposed to the risk of complications. It should be added that steps have been taken to protect the country as far as may be from the introduction of influenza through the ports.

The further activity of the Ministry may be conveniently grouped under the headings of education and research. The knowledge and experience accumulated during recent epidemics have been collected and issued to local authorities at various times in the last 12 months. Within the last few days a leaflet has been issued for popular use (see above), and setting out the best measures of guarding against infection, together with advice to patients as to the best known means of securing a speedy return of convalescence and the avoidance of those complications which constitute the special danger of influenza.

Meanwhile, much active research continues by the medical officers of the Ministry into the causes of epidemics of influenza. Special inquiry is being made in selected districts into such questions as immunity, the effects of overcrowding, incidence according to age, and so on. The medical officers who are conducting these investigations are in close touch with the work which is being carried on by other investigators, and are making their inquiries in collaboration with the Medical Research Committee.

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## THE STRUGGLE FOR EXISTENCE AMONG LOCAL AUTHORITIES.

**DURING the past few weeks portions of the country have become the scene of an interesting and significant struggle between local authorities, some seeking to expand, and others to maintain, their civic boundaries. The storm-centre has been in Yorkshire, where some half-dozen of the larger cities and boroughs are severally seeking powers from Parliament to engulf adjoining districts—already in some instances flourishing communities—and by the same act to deprive the County Council of the West Riding of an important portion of its administrative area. While this form of warfare is by no means a new phenomenon, the period of comparative quietude produced by concentration on a greater war, followed as it now is by this sudden fury of desire for a more conspicuous place in the sun, has brought into unexpected relief the issues underlying the movement. Let it be granted that the contest brings to light a number of unedifying traits; that its aspect of self-aggrandisement, or so-called civic pride, leaps to the eye; that it is selfish in its lack of consideration for the needs and desires of the**

smaller authorities involved, and materialistic in its motto: "Let us swallow, lest another swallow first." Nevertheless, beneath all this there appears to be the motive of grappling with a most vital question in English local administration—the definition of the areas most suited to the various functions of local government. This can be appreciated by anyone who attempts to analyse for himself the public health aspects of the position. How would an unprejudiced medical officer of health propose to give evidence as to whether or not, from the standpoint of the public health, a particular city should extend its boundaries and thereby absorb perhaps an urban, perhaps a rural, district previously governed by its own electorate and administered, aided, or supervised as to some of its public health activities —e.g., education, midwifery, treatment of tuberculosis and of venereal disease, maternity and child welfare, &c.—by the county council? The decision becomes an embarrassing one, and is still more so when considered in general terms without reference to particular areas. Take two of the main communal functions—the provision of water and the disposal of sewage. Certainly the absorption of the smaller into the larger district is, on the whole, likely to lead to a larger and better water-supply for both. But is this necessarily the true ideal, or would it not rather be better that the duty of supplying water both to the city and to the district should be delegated to a still larger authority—perhaps a county council or a group of county councils, with control of an entire watershed, and with power to distribute the supply not only to industrial centres but also to the more remote rural districts? In respect of sewage disposal, again, the larger the scheme the more likely it is to be efficient, and the collection, treatment, and disposal of sewage is likely to be better done by a large city than by a small district. But what of the large towns in which the pail-closet and the midden are still to be found? Should these be encouraged to further civic ventures before they have met their existing responsibilities in this respect? Again, what type of local authority best retains that personal touch and interest on the part of the administrative officer so essential to the efficiency of work such as that of maternity and child welfare, and of the control of tuberculosis and venereal disease? Is it the county, the large city, or the borough with a population of 50,000 to 100,000?

These are but a few of the problems which spring at once out of cursory inspection of the position. A searching official investigation into the whole matter is needed, to include a scrutiny of the relative capacity of the various types of existing authorities, and of such new authorities as may be suggested in substitution. We commend the matter to the Minister of Health for serious consideration. It is true that the department has a vast mass of work to do, but in the course of that work it is acquiring cognate information.

## MENTAL TESTS.

AT a recent meeting of the Educational Section of the British Psychological Society Dr. P. B. Ballard gave an interesting account of the development of measurement as applied to the data of psychology. He showed how the first attempts had passed from the physical through the psychophysical to the purely psychological side in modern times. The value of properly standardised mental tests of intelligence and of ability in school subjects is fast becoming recognised. Indeed, there is a tendency to exaggerate their value and to suppose that mental defects can be diagnosed merely from the data afforded by such tests. They are valuable enough instruments in the hands of the expert, but untrustworthy servants when used by the ignorant and untrained. Of equal promise are the special tests now being devised to ascertain the relative fitness of different individuals for different occupations in life. No one is so suited to take up the application of these various tests as the medical man trained in modern psychology. The opportunities for their use are daily increasing. As Professor John Adams observed in his recent address to the Association of University Women Teachers, certain pioneer employers in this country are already using mental tests in order to select those best fitted for particular types of work. The Industrial Fatigue Research Board and the proposed National Institute of Psychology and Physiology Applied to Industry and Commerce will also doubtless be in need of suitable investigators in relation to vocational selection and guidance.

## TWENTY-FOUR YEARS OF RADIOLOGY.

1. The first radiograph from human hand, made in London, Jan. 13th, 1896 (20 minutes' exposure).

2. Human hand taken December, 1919 (1/100 second exposure).

These are the first two exhibits at the Royal Photographic Society's Exhibition of X ray prints. They give the key to the immense progress which has occurred in the 24 years since Professor Röntgen's far-reaching discovery was flashed throughout the length and width of an astonished world. In "No. 1" the distal phalanges are barely visible; there is no sign of the metacarpal bones in spite of the 20 minutes' exposure. "No. 2" shows a great wealth of detail of bone structure, and a good deal of differentiation of the soft parts—all achieved with a "flash" exposure. The crude instrument of 1895 has been replaced, step by step, by apparatus of ever-increasing power and efficiency. This improvement in the technique of radiography is still going on; the recent invention of the Coolidge tube is a notable instance; none can say when or where it will end. Side by side with the technical advance has gone a corresponding increase in the range of application of the X rays to purposes of diagnosis and treatment, while two dozen years of experience, the world over, have established the interpretation of the X ray pictures, and given confidence to the radiologists in arriving at their diagnoses.

Perhaps the most predominant impression gained by a visit to the exhibition is the great extension of the uses of the X rays for industrial purposes. There are radiograms of golf balls, of shells and fuses, of metallic rods, tubes, and plates, showing faults, defective welding, and so forth. The radiographs of patients show a very wide range of subjects: metallic foreign bodies, fractures—war injuries figuring largely in both categories. Calculi, including gall-stones, rendered opaque by a crust of lime-salts deposited upon the surface of the cholesterin in the course of years. Many diseases of the lungs and other thoracic organs; diseases of bones and joints; and lastly, a large series of prints showing the progress of an opaque meal through the different parts of the alimentary tract. This last is the province in which the X ray investigation has yielded the most far-reaching results in

aiding diagnosis. Gastric and duodenal ulcers, cancers of the digestive organs, appendix troubles and many other abdominal disorders yield their secrets to the radiological test when all other tests may have failed to lead to a definite conclusion. The whole study of chronic intestinal stasis depends for the details of diagnosis on the X ray investigation. This study is fraught with the most far-reaching results to medical science, for it has led to a revision of our views on the ætiology of many of the diseases of the digestive system. Hitherto we have been content to regard "gastric ulcer," "duodenal ulcer," "gall-stones," "appendicitis," "colitis," &c., as isolated diseases. The teaching of Sir Arbuthnot Lane, powerfully supported by the radiological investigation, has shown that they are, in fact, all parts of one and the same disorder. The recent important discussion on "diverticulitis" at the Royal Society of Medicine, reported at some length in recent issues of THE LANCET, afforded one more striking instance of the value of radiology in diagnosis. It is interesting to be able to record that Sir Arbuthnot Lane[1] published an accurate account of this condition and a true explanation of its pathology as long ago as 1886, or fully 11 years before the earliest description usually recognised.

What are the prospects of radiology during the next two dozen years? If we look back on the first two dozen we see that progress, both in apparatus and in application, has gone on step by step in a uniformly progressive manner; so we may assume that future progress will be steadily maintained, though we should, perhaps, hardly expect progress to be at the same rate now the science of radiology is approaching maturity, as during the first years of growth from infancy.

## LOCAL EFFECT OF QUININE INJECTION.

QUININE differs from most alkaloids in that it has little or no specific action on any particular variety of tissue but affects all forms of protoplasm, causing in small quantities increased activity, in larger doses depression and death. It is this property which makes it of such value in the treatment of malaria, for when present in the circulating blood it acts as a direct poison to the delicate protozoa, especially in their extra-cellular stage. The importance therefore of ensuring a sufficient concentration of the drug in the circulating blood becomes obvious, but administration by the mouth does not always achieve this end, and may, for various reasons, be contra-indicated. Of other methods, those most usually employed are intra-muscular or subcutaneous injections, but neither are altogether free from objections. The risk of accidental infection may be reduced to a minimum by careful asepsis, but painful swellings tend to form at the site of inoculation, and necrosis and abscess formation, thrombosis of vessels, nerve palsies, and other complications have been reported. Reference to our correspondence columns during the last few months will show that there is no unanimity of opinion as to the best method of administering quinine. Some practitioners are satisfied with the oral method; others condemn subcutaneous injections and recommend intramuscular ones; others, again, rely almost entirely on the subcutaneous method. Colonel L. S. Dudgeon, in a recent number of the *Journal of Hygiene*, has investigated experimentally the effect of intramuscular injections of quinine, and has arrived at interesting conclusions. He finds that both concentrated and dilute solutions of quinine produce œdema and muscle necrosis, and though the lesions are more severe with strong solutions they invariably occur unless the drug is in such a weak concentration as to be medicinally useless. In addition to necrosis of muscle there may be destruction of blood-vessels and complete degeneration of nerve trunks. Similar results, however, were obtained by injecting the solvents usually employed without the addition of quinine, and since the author was unable to eliminate their action, the alkaloid cannot be held entirely responsible. In combination with urea, quinine was used at one time to produce infiltration anæsthesia in surgical operations, but troublesome œdema and delayed healing of wounds were such frequent accompaniments that this method of lessening shock has practically been abandoned. Similarly, though it is beyond doubt that absorption is extremely rapid after intramuscular injections of quinine, the severe complications which may attend this practice would seem to contra-indicate it save under exceptional conditions.

[1] THE LANCET, Jan. 24th, 1920, p. 220.

## THE AFTER-EFFECTS OF GAS POISONING.

THOUGH the earlier effects of gas poisoning have been fully studied, little attention has been paid to the later. Captain S. O. Cowen[1] has described recently the conditions found in 150 Australian soldiers on disembarkation who presented themselves for treatment at the 5th Australian General Hospital since April last. The series included only those considered by the medical boards suitable for treatment as out-patients. Many were gassed at Ypres in the latter part of 1917, and many in the fighting between April and November, 1918. In general they showed the less severe after-effects. There were not sufficient data to make a comparison between the effects of the different gases used, but mustard-gas seemed particularly potent in causing lung lesions. The symptoms were cough, profuse expectoration, dyspnœa on slight effort, sometimes associated with palpitation and præcordial pain, pain in the back, and loss of weight. Physical signs of lung disease were present in 80 per cent. of the cases. In all of these, changes in the percussion note were demonstrable. In the less severe cases there was a small triangular area of impaired resonance in the right interscapular area. In more severe cases this area extended laterally and downwards until it involved the upper portion of the lowest lobe of the right lung. In the most severe cases the dullness in the right interscapular area changed from relative to absolute, and extended slightly across the middle line. In addition there were, in cases of moderate severity, impairment of percussion note at the right apex, and, in the most severe, at the left also. The vocal fremitus was usually increased over the areas of impaired resonance. Auscultation showed over these areas a type of vesicular murmur difficult to classify—broncho-vesicular most nearly described it. There was prolongation of expiration, and the sound was rather hollow and slightly raised in pitch, as though the vesicular element were lessened and the glottic element exaggerated. The vocal resonance was usually increased. Only three cases presented signs of patchy emphysema. In only six were adventitious sounds present—in all fine sibilant rhonchi. The

[1] Medical Journal of Australia, Nov. 1st, 1919.

apex beat was frequently displaced 1·25 to 2·2 cm. outwards. The "effort syndrome" was commonly present. Tubercle bacilli were never found in the sputum. Of the prognosis nothing definite can yet be said. The possibility of the supervention of tuberculosis must be borne in mind. Treatment proved unsatisfactory. The return to civil life frequently produced improvement, especially if regular exercise was taken, but exertion was generally avoided by the patient. A series of graduated exercises under supervision is therefore to be advised. In addition to long walks gardening or wood-chopping, slowly increasing the daily amount of work, and open-air life are to be recommended. Drugs seemed of little value. In cases of profuse expectoration a mixture of potassium iodide and creosote seemed to give some relief. These facts show that organic changes are present in the lungs. The most common is peri-bronchial fibrosis, with enlargement of the glands, in the hilum and posterior mediastinum. Why the signs are greatest on the right side is not obvious. Captain Cowen does not agree with the conclusion of a French writer, Achard, that "only a small percentage of the surviving gas casualties will suffer from any permanent disability." In the same number of the journal Lieutenant-Colonel C. E. Dennis, radiographer to the 5th Australian General Hospital, gives his findings in this series of cases. Radioscopy, as a rule, revealed no gross lesion; the apices lighted up evenly, but the whole chest usually showed diminished translucency. Diaphragmatic movement on deep inspiration was always restricted, except on coughing, which showed that the restriction was functional. The hilus shadows were usually more evident than normal, often with patchiness due to glandular enlargement. One condition was so diffuse and faint that it was not at first recognised —an increase in the fibrous tissue of the lungs. This caused diminished translucency, manifested by a thickening and increase in the lines radiating from the hilus. Radiograms confirmed this view.

## THE INDICATIONS FOR CÆSAREAN SECTION

THE frequency with which Cæsarean section is being performed calls for consideration. The safety with which nowadays the abdomen can be opened, and the familiarity of many practitioners with this branch of surgery, are likely to cause this relatively easy operation to be performed for a variety of conditions, in which the question as to whether it is or is not the best mode of delivery is a matter upon which there may be differences of opinion. While the student is becoming more and more familiar with the technique of abdominal operations, he is seeing fewer and fewer difficult cases of labour delivered by the vagina. The performance of a simple Cæsarean section calls for less skill and previous training than is required to deliver a patient in a complicated case of labour through the natural passages. We published recently a clinical note by Mr. T. H. Morse on a case of labour obstructed by an ovarian tumour in which, after removing the tumour by the abdomen, he quite rightly and properly proceeded to deliver the patient by the vagina. Unfortunately, the child was born dead, and this fact has led certain of our readers to question the treatment adopted and to suggest that the right thing would have been Cæsarean section to save the child. That mode of delivery was, no doubt, duly considered as an alternative by Mr. Morse, who, in our opinion, was right in regarding ovariotomy, followed by delivery per vaginam, as the proper treatment. This is the method laid down in text-books, and it has been proved to be the most successful mode of dealing with such cases.

A paper contributed to our columns this week by Mr. Beckwith Whitehouse gives a good summary of the view held with regard to Cæsarean section by some, at any rate, of the younger obstetricians. The decision as to the advisability of this operation largely turns upon the relative value placed upon the life of the mother as compared with that of the life of the child. Mr. Whitehouse, in contrasting the results obtained by the induction of premature labour with those following Cæsarean section, states that the maternal mortality following the induction of premature labour is nil, while the fœtal mortality, as calculated by Eden, is some 13 per cent.; from these figures he argues that we are justified in risking a possible maternal mortality of some 3 per cent. for the sake of lowering this fœtal mortality of 13 per cent. But are we? Which are the more valuable to the community as a whole: three mothers, perhaps in the prime of life and still in the child-bearing period, or a possible ten new-born children? As Mr. Whitehouse points out in his interesting paper, the proper treatment for any case of obstructed labour is its prevention and the recognition of the condition which is likely to lead to the obstruction. Every case of obstructed labour recognised for the first time late in labour is an indication that someone has blundered. We believe that however abhorrent it may be to craniotomise a living child, yet in a few of these cases it must and should be done. Mr. Whitehouse's estimate of a maternal mortality of 8 per cent. for craniotomy makes no distinction between craniotomy on the dead child, which has a mortality of rather less, in our opinion, than the figure he quotes, and craniotomy on the living child, which has a very much lower mortality, only some 1–2 per cent., and which alone is comparable to that of Cæsarean section. The reason for this is, of course, that in the one case the woman is often in extremis before the operation is performed, whereas when the necessity for it is recognised, before futile and prolonged attempts have been made to deliver, the risk is much less.

Cæsarean section is now being performed with considerable frequency for placenta prævia. There are many conditions threatening the life of the child in this complication of labour besides that consequent on podalic version, whether bipolar or internal. If Cæsarean section is to be performed for placenta prævia the cases must be carefully chosen. The fact that only one-third of them go to full term, and the grave risk from the abnormal position of the placenta to the life of the child, must be borne in mind, while in any large number of cases it is very unlikely that the maternal mortality will be as low as that after Cæsarean section, when performed as an operation of election for a contracted pelvis. The question as to whether Cæsarean section should become the routine treatment for cases of eclampsia is one even more difficult to answer. It is not easy to believe that the excellent results obtained by the Rotunda method would have been better still if all the patients had been delivered by abdominal section. One of the greatest authorities in this or

any other country on renal disease has given his opinion that the performance of Cæsarean section for eclampsia is but a clumsy method of bleeding the patient! No doubt an exaggeration, but possibly one in which there is more than an inkling of truth. The risk of rupture of the scar of a Cæsarean section in a subsequent pregnancy must, in conclusion, be remembered. Most obstetricians who have delivered a patient by this method feel that in any subsequent pregnancy it must be performed again.

## THE INTERNATIONAL SOCIETY OF SURGERY.

THE triennial meeting of this society will be held at Paris instead of Brussels this year, from Monday, July 19th, to Friday, July 23rd. The subscription is 50 francs. Members of the medical profession who wish to be nominated for election are requested to communicate with Sir D'Arcy Power, K.B.E., 10A, Chandos-street, Cavendish-square, W. 1. The subjects set for discussion are: (1) The surgery of the heart and great vessels; (2) the treatment of tumours by radium and X rays; (3) the analysis of the blood and its biological reactions in surgical affections; (4) fractures of the femur; (5) the prophylaxis and treatment of tetanus.

## THE USE OF CONCEPTS IN MEDICINE.

IN an address on First Principles delivered before the Section of Epidemiology and State Medicine of the Royal Society of Medicine on Jan. 23rd Dr. F. G. Crookshank reproached physicians of the present day, and even epidemiologists, with their content to avoid discussion of first principles and of general notions, holding, with John Hunter, that definitions are, of all things, most damnable. Under the influence of certain schools of thought and certain habits in expression we have become accustomed to speak and write as if a disease were a natural object, permitting physical recognition by those whose business it is to be familiar with diseases of various kinds—in the manner of schoolboys who "spot" a butterfly or a postage stamp. But, Dr. Crookshank goes on—

> ..... the clinical physician varies from day to day the content of his disease-concepts, in accordance with a posteriori results and the dictates of academic convenience: not only in respect of the causes but, as his knowledge accrues, and his point of view changes, in respect of the symptoms described. He makes cross references, and mentally files his observations sometimes one way, sometimes another. So inevitably, what is but a symptom-group to-day may become a "disease" to-morrow: what now appears a disease may, next week, be considered but a part of a greater construct.

The word "epidemic" has, Dr. Crookshank finds, also been used in several senses, of which one is adjectival and obvious, and the others substantive, and this plurality of usage has tended greatly to obscure thought, to the present ascendancy of positivism in epidemiology. We speak of "epidemic disease," meaning thereby disease which we conceive as tending to become prevalent; and we speak of special epidemic diseases, referring thereby to special disease-concepts which embrace the notion of a tendency to prevalence or diffusion. The expressions "disease," "epidemic," and "epidemic constitution" are, in fact, used with reference to correlated symptoms in individuals, cases in communities, and cases and prevalences amongst populations during determinate periods. Each of these usages is legitimate so long as it is understood, but error and confusion are inevitable when specific concepts are regarded as having objective existence. Dr. Crookshank holds that a belief in the objective existence of ideal diseases, epidemics, and epidemic constitutions obscures the value of these mental constructs, the real use of which is as schemata for the prosecution of profitable a posteriori research.

## A DIPLOMA IN TUBERCULOSIS.

THE occasion of the gathering of distinguished medical men and laymen interested in the treatment of surgical tuberculosis at a complimentary luncheon in his honour was utilised by Sir Henry Gauvain to press for the establishment of a special diploma in tuberculosis. The Treloar Hospital at Alton, with which his work has been identified, affords unrivalled opportunities for the study of the local manifestations of tuberculosis in childhood, and for some time past intensive post-graduate courses have been held there. It is probably impossible to obtain anywhere such a bird's-eye view of adult tuberculosis, but the Brompton Hospital for Consumption is arranging lectures and demonstrations, of which details may be seen in our advertisement columns. Outside London and Edinburgh little use is made of the abundant teaching material in our tuberculosis institutions. The Trudeau School at Saranac Lake is a reminder of what might be done with great advantage in this country. With the resolution of the Tuberculosis Society to make representations to the various examining bodies on the need for stimulating a systematic study of tuberculosis we have every sympathy.

## THE NEW HOSPITAL UNITS.

THE university status of metropolitan medical schools is being completed by the establishment of medical and surgical units which are destined to play a large part in the development of medical education in London. The appointments at St. Bartholomew's and St. Thomas's have already been announced. Since the beginning of the New Year medical and surgical units have been in full working order at University College Hospital. As will be seen in our news columns, this hospital has not hesitated to go outside its own staff, and has appointed, as first assistant to Dr. T. R. Elliott, Dr. J. W. McNee, of Glasgow, and as director of the surgical unit Mr. C. C. Choyce, surgeon to the Great Northern Central Hospital and lately dean of the London School of Tropical Medicine. The University College Hospital School of Medicine is fortunate in possessing ample facilities for pathological research by the directors and their assistants in the laboratories endowed by the wise forethought of the late Professor Charles Graham. In all these hospital units three-fourths of the total approved cost is to be paid by the Board of Education, the remainder being found by the medical school itself. At University College both directors and assistants are debarred from private practice; at St. Bartholomew's first and second assistants are designedly left some free time for outside work; and it will be of interest to see which system proves the more advantageous. While the freedom of the directors from competing interests is an important part of the new organisation, we cannot overlook the great importance to the students of receiving some of their clinical instruction from teachers in close touch with more highly educated patients than constitute at present the in-patient

material of general hospitals. This clinical instruction will be given in the future, as it always has been in the past, by the remaining members of the hospital staffs, who will continue to devote their time to clinical and bedside teaching, and who will be able to do this with enhanced energy when relieved from the task of systematic teaching.

## THE ADMINISTRATION OF THE SALE OF FOOD AND DRUGS ACTS THROUGH THE WAR.

THE routine work of our authorities responsible for the administration of the Sale of Food and Drugs Acts must through the war have been much disturbed by the system of control over alcoholic beverages, foods, and drugs which was forced upon the Government by the crisis. Judging from a circular issued by the Ministry of Health last week to the officials of the counties and boroughs concerned, there is evidently a movement forward to bring the administration of these Acts into old lines again. In this circular attention is directed to the powers and duties of local authorities under the Sale of Food and Drugs Acts, and a tacit admission is made that in many areas the exercise of these powers and duties was unavoidably curtailed to some extent during the war owing to the shortage of staff and the pressure of special work. The Ministry attach great importance to the effective administration of these Acts, and express the hope that local authorities will take all possible steps to ensure that the powers conferred upon them are fully utilised. We feel sure that this is no reflection on the admirable work of public analysts during anxious and trying times. No public servant has found it harder to keep his public services going throughout this period, since most of them liberated their assistants, who were qualified chemists, to place their technical knowledge at the service of munition making, sanitary work in the field, and the defensive methods set up against the attacks of poison gas. In the meantime cases of food poisoning or of proved fraud were remarkably rare in spite of the great struggle at times to get food products at all. The public owe much to our food controllers—and in this term we include the medical officers and public analysts.

## THE DEATH OF MR. CECIL R. C. LYSTER.

IT is a common experience that when the student enters his medical school he finds himself attracted to a special department of the curriculum, and this was early the case with Mr. Cecil R. C. Lyster, whose death, we regret, took place on the 26th inst., owing to his devotion, at the Middlesex Hospital, to the study of radio-therapeutics in its application to malignant disease. He had been in charge of this department for 17 years. Lyster followed closely the physical and chemical methods in constant evidence in the laboratory at Charing Cross Hospital Medical School, then under the direction of Mr. C. W. Heaton, a personal friend of Mr. Lyster's father. He was attracted particularly by spectroscopic methods of analysis, which, no doubt, ultimately led him to reflect on the possible application of radiations to disease. This study received a stimulus from Roentgen's discovery of the X rays produced by the Crookes tube. The study was extended by the introduction of radium. Lyster pursued his work uninterruptedly with remarkable earnestness and convinced of a successful issue, a consummation which would have brought great joy to his heart. Whatever the future of radiology may be, Lyster's name will count in the ranks of those devoted men, who, knowing full well the sacrifices involved, made a determined and splendid attempt to relieve suffering humanity from a terrible scourge. The mystery surrounding the fact that X rays and other emanations can set up an ugly pathological process, while at the same time they are employed presumably on scientific grounds to stop the progress of such a process, is in urgent need of study.

AT the Royal College of Physicians of London lectures will be delivered on Tuesdays and Thursdays, at 5 o'clock, as follows:—Milroy lectures: Dr. Aldo Castellani, Feb. 26th, March 2nd, 4th, "The Higher Fungi in Relation to Human Pathology." Goulstonian lectures: Dr. J. L. Birley, March 9th, 11th, 16th, "The Principles of Medical Science as Applied to Military Aviation." Lumleian lectures: Sir John Rose Bradford, March 18th, 23rd, 25th, "The Clinical Experiences of a Physician during the Campaign in France and Flanders, 1914–1919."

AT the Royal College of Surgeons of England a Hunterian lecture on the Late Surgery of Gunshot Wounds of the Chest will be delivered by Sir Berkeley Moynihan on Monday, Feb. 2nd, at 5 P.M. On the following Friday, at the same hour, Mr. V. Z. Cope will deliver a lecture on the Surgical Aspect of Dysentery, and on Monday, Feb. 9th, Mr. H. Tyrrell Gray has taken as his subject the Influence of Nerve Impulses on Gastro-intestinal Disorders. Mr. J. Sherren's Hunterian lecture on the Late Results of the Surgical Treatment of Chronic Ulcers of the Stomach and Duodenum follows on Wednesday, Feb. 11th, and on Feb. 13th, 16th, and 18th Mr. Walter G. Spencer delivers three lectures on the Historical Relationship between Experiments on Animals and the Development of Surgery.

A memorandum just issued by the Medical Women's Federation contains suggestions as to the duty of the State in the control of venereal disease, which were approved at a special general meeting of the Federation held last month. While admitting the urgency of the danger to the community from venereal disease, it is the Federation's considered opinion that the measures now being suggested for the stamping out of infection might prove neither prompt nor effective in their action, while radical measures of reform would show quick and cumulative results.

*Corrigendum.*—In the annotation on Passive Movements in THE LANCET of last week the sentence 14 lines from the top of the page should, of course, read: "Referees without special knowledge should *not* order ....." The context saves the accidental omission of the negative from giving rise to misunderstanding.

## "THE LANCET" OF JAN. 3RD, 1920.

THE Manager will be obliged to readers who have not any further use for their copy of THE LANCET of the above date if they will kindly return it to him at 1, Bedford-street, Strand, W.C. 2. The postage on the number is one penny. He will be pleased to pay for copies returned.

# MEDICAL PRACTICE IN BELGIUM DURING THE GERMAN INVASION.

(FROM OUR SPECIAL COMMISSIONER.)

II.[1]

THE Belgian National Committee in organising the system of relief established a special department to manage medical relief. This included the provision of drugs. It was the same with dispensing chemists as with medical practitioners; a very large proportion of the patients and customers who used to pay their doctors and pharmacists had been swept away by the German invasion. The few medical practitioners who dispensed medicine to their patients would receive a special indemnity. Seeing how very general the custom of dispensing drugs has been among British practitioners, the measures taken in Belgium are of more than local interest. First of all, it was decided that the cost would be reimbursed by the National Committee only if the medical prescriptions were limited to the small pharmacopœia drawn up by the different provincial committees, according to their local resources. Every prescription had to bear the name and address of the patient, the number of his medical card, and the signature of his doctor. It would be null and void if it went beyond the scope allowed or was presented to others than the duly appointed and recognised pharmacists.

*A National System of Medical Relief.*

When after a while the service was thoroughly organised and the resources available increased, the indemnity allowed to the medical practitioners was fixed at 75 centimes per month per family. Those practitioners, however, who did their own dispensing received 1 franc 75 centimes. Thus more was allowed for medicine than for medical advice. In the old club practice of England, when the subscription paid was generally 4*s*. per annum per member, it was calculated that 1*s*. out of the 4*s*. per member covered the cost of medicine. On Oct. 1st, 1918, the indemnity in Belgium was raised to 1 franc per month per family, and to 2 francs when the practitioner provided the medicine required. At the normal rate of exchange this would be equal in round figures to 9*s*. 6*d*. per annum per family for medical attendance and another 9*s*. 6*d*. for medicine. These, it is true, are war conditions, drawn up when there was great difficulty in obtaining drugs; but then, again, the local committees limited the prescriptions allowed to such drugs as were available. Extra sums were and still are allowed, for this service continues on a reduced though still on a large scale for special services, as, notably, for accouchements. The patient has the right to call in a doctor or a fully qualified midwife. In either case, the fee given is 15 francs; but if unusual difficulties arise—dystrophia, for instance—the midwife must call in medical assistance. In this case the doctor also receives 15 francs. Any medical attendance required, after nine days since the birth of the child, is considered as usual medical attendance and included in the terms of the annual contract. Among other special services for which a separate arrangement is made according to the circumstances are consultations with oculists, oto-rhino-laryngologists, urologists, dermatologists, and dentists. All such consultations are paid for apart from the usual indemnity and on a scale fixed according to the circumstances. Whenever possible the cost has been evenly divided between the Central and National Committee and the local Provincial Committees.

*Immediate Aid for Urgent Need.*

Of course, this great and national service only concerns the Belgian Doctors' and Pharmacists' Relief Fund in an indirect manner. It is very evident, however, that but for its existence a far larger number of Belgian doctors would have been reduced to the greatest distress. Also its effects could only be felt gradually, whereas when a village had been attacked, a surgery burnt down, a practice destroyed or at least temporarily suppressed, immediate assistance was urgently needed. Then it was that the funds subscribed and sent over from England were of the greatest use. There was no need to wait for an official inquiry, which is inevitably a slow process. The Belgian Committee for the Aid and Protection of Victimised Doctors and Pharmacists acted at once. Like major and minor surgery, they had two categories of victims. For the worst cases 700 francs were sent at once. In the minor cases the sum given was only 400 francs. Then a monthly pension was paid of various sums up to a maximum of 250 francs per month. With this allowance the medical men thus relieved were just able to exist, though some among them had as many as eight or nine children. Not one of them all ever complained, and some who had received funds from England gladly rendered whatever gratuitous medical service was needed in their neighbourhood. Thus the British Medical Relief Fund was of assistance, in some instances, to the Belgian people at large, as well as to the Belgian doctors, and the Belgian people are not ungrateful. In the schools the children are now taught that they must never forget what Great Britain and the United States of America did for Belgium during the Great War.

Though this excellent lesson is being taught on all sides and profound gratitude is felt, there is also a good deal of grumbling. Of the 600,000 families who had to depend on the National Committee and the contract system of medical aid it set up, only half have been able to resume the payment of their medical attendants. 300,000 families still continued, more than a year after the actual fighting had ceased, to depend on the public medical service established during the war. It is not surprising if there are signs of impatience, and that complaints are made because, for instance, raw materials do not come plentifully from England, so that the Belgian factories and mills may get to work again. Families and neighbours have drawn closer together than they ever were before the war, and strive to encourage and help each other. They are told to work and things will right themselves and be as they were before; but the older people feel that they will not live to see that day. A sense of weariness, of listlessness, has overcome some who suffered beyond endurance or are not strong enough to react. These events have worked out in such a manner as to greatly discourage the best elements of the population.

*Unequal Distribution of the War Burden.*

During the German occupation a very large portion of the working-class and of the industrial and commercial classes behaved with heroic patriotism. This may especially be said with regard to the railway servants. They preferred starvation and persecution to working for the Germans. Others, on the contrary, accepted employment from the enemy, and thus got food and wages. Manufacturers had their machinery respected, and some made large profits. Now that the country is free again, it is precisely this, the less patriotic section of the population, which to-day is best able to profit by the rebirth of industry. Those who, on the contrary, held out against the Germans, had their machinery destroyed or carried away, and so are not in a position to resume their former industry. The workmen, on their side, who refused to work for the Germans, are also hardly in a better position. More than four years' enforced idleness and underfeeding has destroyed much of their former energy and readiness to work. They have not strength; they long for rest and quietude. They do not want to be troubled; they are deeply depressed. If the cost of living was not so high, a few months of the desired freedom from care and fear, accompanied with a generous diet, would doubtless do much to restore the former efficacy of the Belgian workman, but this desirable solution of the difficulty is not yet possible. It will be very interesting to know what will be the moral and physical effect of the martyrdom of a whole nation. The most terrible fact is that those who behaved best have suffered most. They are

[1] Part I. appeared in THE LANCET of Jan. 24th (p. 212).

therefore the least able to profit by the restoration now slowly taking place. To prevent this glaring injustice should be the first desire of every right-minded person; and, where there is the will, there should be a way.

## ASSISTANCE TO VOLUNTARY HOSPITALS.

### A RED CROSS SCHEME ADOPTED BY THE BRITISH HOSPITALS' ASSOCIATION AT A CONFERENCE ON JAN. 23RD.

THAT the voluntary hospitals of the country are passing through something not far short of a financial crisis is well known, and the reasons are not far to seek. In the first place the rise in the cost of staff, foodstuffs, drugs, dressings, linen, &c., during the last five years has been abnormal; and in the second place structural alterations, extension, repairs, and even the ordinary annual cleanings and renewals have had to be suspended during the war.

The financial shortage has been to some degree met by the wonderful generosity of the public, which seems almost inexhaustible, even in these days of high taxation and depreciated currency. But those who have to collect money for charitable purposes know that their appeals must now be made in a different way from that which sufficed before the war. In those days the benevolent assistance of a comparatively small number of subscribers answered the purpose. Now the appeal must be organised and made to the masses, who are ready enough to give, but who cannot afford to give large sums.

*The Organised Collection of Small Donations.*

It is only by the organised collection of small donations that the vast sum of money which is needed by the voluntary hospitals of the country can be raised, and it is to the solution of this problem that our attention must be turned.

During the war the Joint Committee of the British Red Cross Society and the Order of St. John was responsible for the establishment and maintenance—beyond the Government capitation grant—of some 1600 auxiliary hospitals. For this purpose a large sum of money had to be collected every year, and an organisation gradually arose which eventually became the greatest collecting agency in the country. "Our Day" has now become not only a national but an imperial institution, as the day on which the hearts of the countless millions of British subjects all over the world go out to those of their race who are sick and suffering. Surely this organisation can be of use in time of peace, as in time of war, and the sympathy of British people will be no less real for civilians who have fallen in the battle of life than it was for the gallant men who were wounded on the battlefield.

For many years the London hospitals have enjoyed the benefit of great collecting organisations, such as King Edward's Hospital Fund, the Hospital Sunday Fund, the Hospital Saturday Fund, and the League of Mercy. The provincial hospitals have no such central funds, and this fact suggests a useful field of work for the Red Cross organisation.

The Joint War Committee of the British Red Cross Society and the Order of St. John has practically finished its work, but it lives again in the form of a Joint Council, which desires to do for civilians work of a similar character to that which was done for soldiers and sailors during the past five years, and to act as a channel through which the generosity of the British public may flow to the relief of suffering and distress.

If the voluntary hospitals throughout the country will accept the assistance of the Red Cross, then assuredly the spirit of sympathy which made the war work of the Joint Committee possible will not be wanting for the equally important peace work of the Joint Council.

*Help other than Financial.*

There are many ways in which the Red Cross can help the voluntary hospitals in addition to the collection of money. The preparation of statistical tables similar to those issued by King Edward's Hospital Fund would be of the utmost use to hospitals by giving them the means of comparison with each other's figures, and thus detecting possible loss and waste.

Information and statistics could also be codified and tabulated at a central office in London, where there would be a reference library, to which application could be made for the latest details regarding all matters connected with hospitals, such as planning, construction, heating, lighting, &c.

*Stores.*—The Joint Council has storage accommodation in London, and proposes to invite gifts of hospital stores, &c., from which grants could be made to hospitals in need. In connexion with stores (especially the requirements of surgery and dispensary) it may be pointed out that the Council will be in a position to buy on the most advantageous terms under expert advice, and it is thought that in this way it would be of considerable use to those hospitals which desired to avail themselves of the opportunity, as the Red Cross undoubtedly was to many hospitals and to the Government itself during the war.

*Buying on analysis.*—At headquarters facilities would be provided for the analysis of articles of hospital consumption, and for the supply of details with regard to prices and deliveries of all hospital commodities. Here, also, if necessary, would be stored in bulk non-perishable drugs, dressings, &c., from which applicant hospitals might draw, should they so desire.

*Work parties.*—It is hoped that some at least of the work parties that did such valuable service during the war in providing the necessary hospital garments, &c., will be inclined to carry on their good work in time of peace. A circular is being addressed to the counties asking the work parties, as during the war, to provide first for the necessities of their own local hospitals, and then to send up to headquarters such surplus stock as may be available. If it were found that the response from the counties warranted it, a statement setting forth the particular articles of which the hospitals and child welfare centres were most in need would be issued from time to time.

*War and peace library.*—The War and Peace Hospitals Library, which has distributed such a vast number of books and magazines to military hospitals during the past five years, still remains in existence and is willing to carry on its work in peace time for the civilian hospitals. It is obvious that literature is just as much required by civilian patients in hospital as by sick and wounded sailors and soldiers, and it is earnestly hoped that the Red Cross organisations throughout the country will continue to give to the Library that unfailing and generous support which they have given during the past five years.

*The Only Condition Attached to the Help.*

These are some of the ways in which the Joint Council of the British Red Cross Society and the Order of St. John could help the provincial hospitals, and all that the hospitals would have to do in return would be to keep their accounts on the uniform system, which is unanimously accepted by the London hospitals and by most of the larger hospitals in the country.

This Memorandum does not pretend to enter into details, as these must be settled in consultation with the representatives of the hospitals themselves, should the scheme meet with acceptance. It must only be regarded as an outline of the way in which a great voluntary organisation might prove of assistance to voluntary hospitals. It is obvious that the money grants that could be made to hospitals must necessarily depend upon the measure of financial support received from the public by the Joint Council, but even if no large amount of money were forthcoming there would undoubtedly be much to be gained by the establishment of a central bureau where expert advice and statistical information could always be obtained, and where particulars of any branch of work in which an individual hospital excelled would be available for the use of other hospitals and for the benefit of the community in general.

January, 1920.

# HOUSING NOTES.

*The Problem of the Unfit House.*

THE problem of the house unfit for human habitation is an ever-present one, accentuated only by recent events. An interesting aspect of the question is discussed in his annual report for 1918 by Dr. J. W. Hembrough, the county medical officer of health for Northumberland, whose death was recorded in our issue of last week. This report is, of course, founded on the general position of the last year of the war, when the difficulties of labour and cost could not be clearly anticipated. Dr. Hembrough points out the need, on the part of the local authorities concerned, of a definite policy for dealing with the 1500 houses or more in that county which are unfit for human habitation and incapable of being made fit. He points out the danger of postponing closing orders until the local housing scheme has been *completed;* for if the contemplated scheme prove insufficient or be incompletely carried out the unfit houses may continue to be occupied. Dr. Hembrough therefore suggests that closing orders should, as the building scheme progresses, be issued in the proportion that the number of unfit houses bears to the number of new houses in the council's scheme, so that the occupation of the unfit houses would terminate with the completion of the housing scheme. This is a wise and valuable suggestion. Its influence would probably extend beyond its immediate purpose of ensuring the closure of unfit houses, and would affect the primary problem—the decision as to whether a house shall, or shall not, be labelled as unfit for human habitation. Rightly or wrongly, there is little doubt that in some areas the number of houses so labelled has been limited by the doubt as to the likelihood of such action being made effective by closure under present conditions.

The decision as to whether a house is unfit or not has always been a matter bristling with difficulties. No clear-cut rule can be promulgated. Text-books tabulate lists of defects rendering a house unfit for occupation. The Ministry of Health has recently issued an admirable manual on the subject in which the general principles are clearly summarised. But the rub comes when for the arm-chair perusal of suggestions is substituted their practical application to a particular cottage. It is the experience of all that general standards as to fitness in housing need often remarkable adjustment in individual cases. The unsound house might almost be said to bear to the medical officer of health the same relation as does the sick patient to the private practitioner—text-books are indispensable, but the individual, whether house or patient, often will not square with the type. The ultimate question to be answered is not, "Is this house damp, or dark, or cramped?" but the much vaguer one, "Is this house liable through structural defect to affect the health of its occupants so adversely that it should not be occupied?" This standard, vague enough at any time, has of late been confused by several extraneous considerations. One has already been mentioned—the doubt as to whether the condemnation of a house could be made effective. Other cross-currents have also come into play. For instance, there is the idealist who sees in the present discontent a chance of creating a new heaven and a new earth by a wholesale destruction of the old. There is also the administrator who feels that in the face of present economic stress and high prices he must not produce still greater scarcity by condemning houses which under happier circumstances he would not allow to remain standing.

While probably most medical officers of health have managed to steer a clear course between the opposing policies, the experience of the past few months, now crystallised in the housing surveys of the various districts, is likely to show that in some areas the medical officer of health has been deflected to some extent from his course in this matter. This is, on the whole, most likely to apply to part-time officers in the smaller districts, where the conditions of appointment render the medical officer more susceptible than his whole-time colleague elsewhere to the views of members of his authority. All such deviations will doubtless right themselves in time. It is probable that in a number of areas more houses, at present classed as merely below a reasonable standard or as unfit but capable of being made fit, will definitely be condemned when it is realised that a methodical procedure, such as that suggested by Dr. Hembrough, for their closure will distribute the burden equitably, ensure effective closure, and remove many of the difficulties anticipated. It becomes increasingly clear that the only wise rule for the medical officer of health in his consideration of housing is to ignore all temporary economic and social vagaries, and to have regard solely to the relation of house to health. Only thus will he establish for himself a standard which will not be stultified in future years.

*Official "Illegalities."*

The housing department of the Ministry of Health has the unusual experience of being in the position of an examinee whose work has been "turned down." The Greenwich borough council is concerning itself with the conversion of 30 or 40 old houses into flats. The plans prepared for the council in the first place were not proceeded with, the Ministry's housing department being invited to carry the work through on its own lines. The medical officer for Greenwich now reports that the conversion has produced more flats than the laws of hygiene, and even the regulations of the Town Planning (1919) Act, will allow. He has recommended the borough council to reconstruct the buildings according to the original plans. The medical officer's report has been forwarded to the Ministry of Health.

*The Shortage of Labour.*

There has been little or no response to the Prime Minister's appeal for dilution of labour in the building trade and the shortage of bricklayers remains the most difficult factor in the housing problem. The official publication of the Ministry on the subject concerns itself more and more with methods of constructing houses. In the meantime an important experiment is being commenced in Manchester, where a Building Guild Committee has been formed. This committee claims to have a monopoly of the labour, and states, moreover, that through its agency alone the Manchester housing scheme can be carried into effect. The main idea is that if the industry is controlled by the workers themselves work will be given ungrudgingly and far more will be carried through than is possible by unwilling work done for a contractor. If the tender of this committee is accepted—and there seems no great likelihood of its being refused—the guild movement may spread.

*Garden Cities.*

It is satisfactory to note that the encouragement given by the Government to ideal town-planning has not been without effect. One of the most interesting schemes of this nature, because it is in a neighbourhood where ideal planning has been little seen until now, is the scheme for the Isle of Dogs. Here 120 houses are to be built, the whole scheme being estimated to cost £110,000, not including the price of the land, which is stated to have cost nearly £10,000. The mayor encouraged the builders by saying that there was no reason why they themselves should not occupy some of the finished houses.

*The Renovation of Slums.*

The last two numbers of *Housing* contain an account, under the title of "A Glasgow Housing Experiment," of the experience of that city in making "bad areas" healthy. The bad areas selected for treatment contained houses whose frameworks were sound but whose interiors were dilapidated and verminous. The inhabitants conformed closely to their environment, and the general atmosphere was one of disease and disorder. These areas are now "healthy and respectable working-class districts." The houses were all overhauled in the absence of their tenants—a happy condition not easy to achieve at the present time. Where lighting conditions were bad these were improved by rearrangement of interiors. The cost of these alterations was considerable

and the difficulties in "renovating" the tenants were at least as great as those met with in their homes. But in the result faith and perseverance have been justified.

## BRITISH FEDERATION OF MEDICAL AND ALLIED SOCIETIES:

### DEPUTATION TO DR. ADDISON.

ON Jan. 23rd the Minister of Health received a deputation from the Federation of Medical and Allied Societies, which waited on him to give effect to the resolutions adopted at the Conference at Steinway Hall on Dec. 12th, 1919.[1] The deputation, which was introduced by Sir W. Watson Cheyne, M.P., and supported by Lieutenant-Colonel F. E. Fremantle, M.P., consisted of the following: Dr. Arthur Latham, Dr. E. H. Stancomb, Sir Thomas Horder, Dr. J. F. Gordon Dill, Dr. Charles Buttar, Dr. N. Howard Mummery, Mr. Frank Coke, Dr. R. H. Cole, Dr. Rashell Davison, Miss Eaton, Sir William Arbuthnot Lane, Bart., C.B., M.S., Sir Thomas Parkinson, M.D., Dr. William Pasteur, C.B., C.M.G., Dr. B. A. Richmond, Sir Ronald Ross, K.C.B., K.C.M.G., F.R.S., Mr. F. P. Rowsell, J.P., and Dr. Arthur Shadwell. The object was to represent to the Minister of Health that a public inquiry should be held as to the conditions of service under the National Insurance Medical Benefit, and as to how far those conditions promote efficiency on the part of the medical profession and give commensurate results to the community.

It was emphasised by Dr. Arthur Latham, Sir Thomas Horder, and Dr. Charles Buttar, speaking for the deputation, that the existing regulations do not permit the insured person to receive all that the science of medicine has to give, nor enable the medical practitioner engaged in panel service to do the effective work that he is able and anxious to do; that there exists widespread dissatisfaction with the working of the panel system both on the part of the insured and the panel practitioner; that the Act has now been in force seven years without any public inquiry having been made to ascertain its efficiency or inefficiency; that such an inquiry would seem to be a necessary preliminary to any expansion or alteration of the provisions of the Act; that the question of remuneration of panel practitioners, which has recently been a matter of negotiation between the Minister and the Insurance Acts Committee of the British Medical Association and which has now gone to arbitration, is of secondary importance to the question of efficiency; and that the Treasury grant for the purpose should be governed by the amount necessary to ensure a satisfactory service, and *not* be reviewed, as Dr. Addison on Jan. 14th, 1920, stated it would be, in the light of other national commitments. It was pointed out that upon the health of the workers depends the solution of industrial unrest, and that to continue an unpopular and apparently inefficient experiment in the medical treatment of a large proportion of the community is likely to increase that unrest.

*Dr. Addison's Reply.*

Dr. Addison, in replying to the deputation, admitted "that the present system was a chaos of effort, and that a public inquiry was likely to instruct the public, the doctors, and himself," but he held that he must await the report of his Consultative Council on the working of the present system before deciding to advise the Cabinet to set up a wider inquiry than the Council could undertake. He aimed "at a scheme whereby a markedly individualistic profession could work better together in the public interest." He also stated that he recognised and appreciated the work that the Federation had done and was doing, that he had always encouraged the movement, and regretted that the organisation of the allied professions in a political sense, as was now being achieved by the Federation, had not been begun 20 years ago.

[1] THE LANCET, Dec. 20th, 1919, p. 1160.

## IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

*A National Medical Service.*

THE announcement that the Irish Public Health Council had decided to recommend to the Government the establishment of a National Medical Service with entry by competitive examination has roused much interest in the medical profession in Ireland. It is remembered, of course, that in making this recommendation the Council is following on the lines of the Viceregal Commission which reported in 1906. As the chairman of the present Council was one of the members of that Commission, this decision of the Council should cause no surprise. The report of the Viceregal Commission received a warm welcome, both from the public and from the medical profession, and many of its recommendations have become part and parcel of the programme of reform put forward without ceasing by the medical profession in the past 12 years. It is to be hoped that the Government of to-day will prove more alive to the necessity of reform than was the Government which pigeon-holed the Viceregal Commissioner's report. The transformation of the dispensary medical service and the other public medical services of Ireland into a unified national service would make changes which one unacquainted with rural conditions in Ireland can hardly realise. The medical officers of the dispensary service are rightly discontented with their present lot. They are underpaid, they serve under almost intolerable conditions, they are subject to the petty tyranny of local boards of guardians, and there is no provision for promotion or transfer. As members of a national service, with adequate salaries, satisfactory conditions as regards leave and pensions, and the right to promotion for good work, they will take a wider view of the possibilities of their career. At present and for many years past it is too true that the most ambitious and promising of young Irish medical men sought a career outside their native country. In the future one may hope to see their own land retain the services of the best and most capable. The mere establishment of a National Medical Service will not, however, of itself do this, unless those who will be concerned in framing it take meticulous care that the conditions of the service are thoroughly attractive. In the first place the scale of salaries must be adequate. It must be such as to compete with other offers open to young medical men. At the present value of money this means that the initial figure must be a good round sum. The members of the service must be assured of facilities for performing their professional work. The auxiliary services—hospitals, consultations, pathological examinations—must be readily accessible and efficient. There must be proper provision for leave, for study leave, for promotion, and for superannuation. If these matters are well thought out in a generous mood one may hope for a bright future in Irish medicine.

*The Reference to the Irish Medical Committee.*

The Irish Public Health Council has asked the Irish Medical Committee to put forward its views as to the functions and duties to be entrusted to the medical officers of the proposed Irish Medical Service, and as to the classes of the community which would be entitled to medical attendance in connexion with that service. The Irish Medical Committee appointed representatives to advance certain views, but it cannot in any way bind the medical practitioners of Ireland until it gets back in full the final views of the Irish Public Health Council on the matter, and then, as arranged, it will have to call the whole profession together, as it has no authority of any kind to assent to any arrangement until the profession is first put in possession of all the facts. There is in Ireland a good deal of difference of opinion on the question of a medical service between the Poor-law medical officers and the panel doctors, especially those in the large towns. Does the proposed "Irish Medical Service" extend only to the Poor-law doctors, or does it embrace all the general practitioners

Poor-law and panel doctors? Is it a full-time or part-time service? Neither the Irish Medical Committee, the Irish Medical Association, nor any other body dares take the responsibility of settling such questions until the whole body of the profession concerned is first consulted. In any case, the future of such arrangements is uncertain. The elections of last week demonstrate that the Labour Party and those who are in favour of an Irish Republic are now established in control of municipal administration in most of Ireland. They will more than likely defy the sanctions and regulations of the Local Government Board in their administrative capacity, and they will have control of some millions of local funds.

*The Term "Panel Doctor" in Ireland.*

Under the Insurance Acts, Ireland, as is well known, was excluded from the whole system of medical benefit, but the term "panel doctor," nevertheless, is used in a broad sense for any medical practitioner who has to do professionally with, and is paid by, the insurance authorities. To a certain degree they might be called "certifiers"—that is, they sign, after examination, that so-and-so is unfit for work. A certain sum of money is put aside by the insurance authorities for the payment of those who sign a document to these authorities that they are prepared to act as "certifiers." The sum is £8000, I am told, for Belfast, and it is divided equally among these recognised "certifiers" according to the number of insured persons examined, and who send in certificates. Any person can sign a certificate in Ireland, which is accepted by the insurance authorities, but payment by the insurance authorities is made *alone* to those recognised in the way I have explained, and they may be said to constitute a recognised "panel." Medical benefit exists in the case of tuberculosis and of maternity benefit, and recently for the treatment of discharged soldiers.

*Presentation to Sir John Byers.*

At a complimentary dinner given by his colleagues on the visiting staff of the Royal Victoria Hospital, Belfast, to Sir John Byers on the completion of his term of service, a piece of plate engraved with their names was handed to him by Professor J. A. Lindsay, who presided, and who ascribed to Sir John Byers's 37 years' service the establishment and organisation of the special department for women. Sir John Byers became in 1893 professor of midwifery and of diseases of women and children in the Queen's University, Belfast; he was for three years chairman of the medical staff of the Royal Victoria Hospital, for long a member of its board of management, and at various times on the building committee of the new hospital and on the executive committee of the King Edward VII. Memorial Building for X Ray and Vaccine Therapy. He was knighted in 1906.

*Tragic Death of Dr. G. A. Hicks, of Belfast.*

Dr. George Adams Hicks, whose death occurred from septicæmia, due to a hæmolytic streptococcus, after an operation prick, was only 43 years of age. A native of county Sligo, he studied at Queen's College, Belfast, graduating M.D. R.U.I. in 1904, and in 1912 he became a Fellow of the Edinburgh College of Surgeons. For a time he was demonstrator of physiology in Queen's College, Belfast. On the resignation of the late Dr. J. St. Clair Boyd, in 1906, he was appointed one of the surgeons of the Samaritan Hospital, Belfast, where he became an operator of great promise. He is survived by a widow and a daughter, to whom the deepest sympathy is extended.

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CARDIFF MEDICAL SOCIETY.—**This society held a clinical evening on Jan. 20th. Two cases of Talipes were shown, one after and one before operative treatment, consequent upon infantile paralysis, in girls aged 12 and 14 years respectively; and a typical case of Pseudo-hypertrophic Muscular Paralysis in a lad was exhibited by Dr. Ivor Davies.—Mr. A. Howell brought two cases of doubtful diagnosis before the society, one in a male of a tumour apparently attached to the crest of the right ilium; the other, in a woman, of unusual enlargement of liver and spleen not associated with definite blood changes.**

## PARIS.

(FROM OUR OWN CORRESPONDENT.)

*Encephalitis Lethargica.*

THE new disease, which seemed to be diminishing, appears to make fresh progress. Cases still occur in the Paris district, and have recently occurred also near Lille and Cherbourg, where several deaths have taken place. About 20 cases have been recorded. The disease causes anxiety, partly on account of the high mortality—1 in 4—but also because of our ignorance as to the method of infection. Its infectious nature is more or less established, since many cases have been reported from the same family or the same house. The respiratory passages are suspected, but nothing certain is known, even of the nature of the disease. M. Netter suggests a filterable virus, comparable to that of epidemic poliomyelitis or infantile paralysis, and that this is the same disease attacking the base of the brain instead of the spinal cord. The cerebro-spinal fluid is negative on examination. If signs of meningeal reaction are observed, according to M. Pierre Marie, the case is probably one of syphilitic or tuberculous meningitis. On the other hand, M. Achard thinks that the presence of white globules in the cerebro-spinal fluid does not exclude encephalitis lethargica. He thinks that in these cases there is a special localisation of influenza; some cases are certainly associated with pneumonia. The public are much agitated about this mysterious disease, and tend to attribute to its agency every case in which sleepiness is observed. Comic papers and music-halls have already adopted it as a topical allusion. The most characteristic signs up to the present are a temperature up to or even over 39° C., lassitude, a tendency to sleep prolonged over several days or even weeks, and ocular paralyses, including ptosis, strabismus, abolition of ocular reflexes, and paralytic changes involving even the facial or trigeminal nerves. According to M. Netter, the disease is not absolutely new, and can be identified in descriptions of former epidemics, especially those in 1712 and in 1890.

*Kineplastic Amputations.*

Dr. Tuffier has recently described to the Académie de Médecine his first attempts at applying the new method of treatment of amputation stumps recently initiated in Italy, where he has seen it performed. The method consists in preserving the greatest possible length of tendons, which, when covered with skin, are used individually to move different parts of the apparatus attached to the stump. Thus the fingers of an artificial hand can be moved, after an amputation at the wrist, by the flexor tendons, whose ends are folded back and sutured to form rings into which hooks attached to the fingers are inserted. The idea is certainly very ingenious and deserves to attract the attention of surgeons, above all now when so many cripples have great difficulty in following a trade even with the best artificial limbs on the market. Dr. Tuffier, however, after his first experiments, finds that the technique of the operations must be considerably improved before the method can fairly be judged by its results. Hitherto the results in the lower limb have been practically nil; though the quadriceps extensor is an extremely powerful muscle, the isolated tendon does not develop enough strength to lift an artificial leg. Better results were obtained in the hand, but only in a small proportion of the patients operated on. It was surprising to find that in order to procure the amount of flexion obtained by a muscular shortening of 1½ cm. in the living subject, a displacement of 6 or 8 cm. of the tendon of the contracting muscle was required. It is not that the traction made is not powerful as measured by a dynamometer; it is the artificial members that are at fault, and their mechanism will have to be modified. For instance, the hand and the fingers can execute the required movements only when these movements demand no force. However, Dr. Tuffier has seen a workman who was able to pursue his trade of a joiner as skilfully as before being crippled. This case is

unique up to the present, and merely serves to justify the hopes founded on the future of this interesting method when it is sufficiently improved in surgical technique and adaptation of apparatus.

*Isolation of Influenza Patients.*

M. Lesage has just put in a plea, based on information received in connexion with the recent epidemic of influenza in children's hospitals, for isolation of the patients, if only by cubicles. It is the surest means of avoiding the unfortunate results of promiscuous overcrowding, an undeniable factor in the spread of the disease itself and of its complications. For the rest, M. Lesage shows that, contrary to the opinion too often reiterated, infants at the breast are not immune to the disease. If an infant but rarely contracts influenza it is just because, by the nature of things, babies live a relatively isolated life; but if they come into contact with victims of influenza they are liable to attack just as adults are.

*Prophylaxis against Dysentery introduced by Demobilised Soldiers.*

Considering the number of demobilised men suffering from malaria and dysentery, and liable to communicate the infection to their neighbours, M. Barbary, of Nice, believes that prophylactic measures should help both the patient and the community. As to the former, the principal precautions include the tracing of infected persons and their subsequent free examination and treatment, preferably in connexion with the public dispensaries; whereas the community will be educated by means of circulars, notices, and lectures, as has already been attempted in the case of malaria. In fact, there have been created throughout France prophylactic centres to fight malaria, with medical inspectors whose duty is to follow up demobilised malarial soldiers and to organise prophylactic measures in their neighbourhood, since it has been proved that anopheles mosquitoes can live in France. This already existing organisation could at the same time be adapted to prophylaxis against dysentery, which is much more definitely contagious. The medical inspector would render valuable service in instructing the patient's friends how to prevent the spread of the disease by the proper disinfection of his excretions and their receptacles and of all soiled linen. These precautions are not always taken in ignorant country circles, and the promiscuous conditions in which peasants dwell together create a very favourable medium for the infection, if the doctor does not himself educate them on completely new lines. These measures are the more urgent, as there are at the moment in France a large number of demobilised soldiers who have contracted dysentery in Salonica or the East and who suffer from frequent relapses.

*A General Confederation of Scientific Work.*

An important event, which will have a marked effect in French and foreign scientific circles, took place on Jan. 16th at the Collège de France. On the motion of M. Charles Moureu, member of l'Académie des Sciences and of l'Académie de Médecine, and with the support of most eminent scientists, among whom were MM. Appell, Lacroise, Picard, Henneguy, a preliminary gathering of delegates of French scientific societies considered the possibility of founding a general Confederation of scientific work. The principal object of the Confederation would be the organisation of scientific research, and it would probably embrace many hundreds of societies and include some 20,000 associates.

Jan. 17th.

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**THE Minister of Health has promoted Dr. Richard J. Reece, C.B., to be a Senior Medical Officer of the Ministry.**

**THE Women's Coöperative Guild have issued a circular demanding the control of maternity centres by the local authority rather than by voluntary organisations and adequate representation of working women on committees controlling them. Further, they urge an increase in the number of maternity and infant welfare centres, the provision of a sufficient quantity of milk to all mothers, and of more maternity homes; also the immediate establishment of maternity committees, a service of home helps, a national midwifery service, and a free service of medical specialists.**

# Public Health.

## ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

*Administrative County of Essex.*

WE presume that the annual report for 1918 is the last that will be written by Dr. John C. Thresh, as he has now retired from the office of medical officer of health for the county, and that Dr. W. A. Bullough, his successor, will be responsible for such reports in future. At the request of Dr. Bullough, Dr. Thresh gives in this, his final report, an excellent résumé of the sanitary work done by the Essex County Council since its inauguration in 1888. This is an exceedingly interesting record, of which the county council and Dr. Thresh have good reason to be proud. Among other matters the following are considered: The provision of isolation hospitals; the prevention of river pollution; water-supplies; scavenging and excrement removal; offensive trades; housing of the working classes; sanitary staffs of the different districts in the county; bye-laws in force; school medical inspection; tuberculosis; treatment of venereal diseases; maternity and child welfare; administration of the Food and Drugs Act; and public health laboratory work.

The good work done by Dr. Thresh in connexion with the water-supplies in Essex is too well known to require comment. At one time or other he has studied the supply of practically every village in the county, and in this connexion has made thousands of analyses. In the present report, however, he issues a timely warning. The existing sources of supply are being depleted. The water travels so slowly through the sand-beds in the lower London tertiaries, and the outcrop of the sand and of the chalk beneath is so limited that water is now being pumped from the wells more quickly than it can be replaced. Consequently, the water-level is continuously falling, and the difficulty and expense of raising it increases. Some years ago Dr. Thresh pointed out that exceedingly minute quantities of chlorine would, under certain conditions, destroy all harmful bacteria in water. This method of sterilisation is of course, adopted by a large number of water companies and by the Metropolitan Water Board. There are rivers in Essex yielding water which can be so treated, and, in Dr. Thresh's opinion, the time will come when these waters will have to be utilised.

Dr. Thresh's views on the tuberculosis problem are interesting if somewhat gloomy. He expresses the opinion that at the present time the tuberculosis officers in the county are chiefly engaged in doing work which could be equally well done by the medical practitioners who are receiving the pay for it from the insurance funds. The sanatoriums are doing work which could, in many cases, be better done by providing tuberculous families with sanitary houses in the country and supplying nursing and home care, the necessary medical attention being given by the local practitioners. Hospitals for advanced cases and for cases requiring surgical treatment will always be necessary, while open-air institutions for children in the early stages of tuberculosis will always be desirable, but other cases could, as a rule, be better and more economically dealt with in their homes than in sanatoriums. It must be admitted that sanatorium treatment on a large scale has not yet had a fair trial, and the results obtained so far as the experiment has extended are rendered of little value on account of war conditions. But the fact that the disease has steadily increased since the Insurance Act was passed does not afford much ground for hope. However much sanatoriums are improved, and however unsuccessful the results, there will always be people who will attempt to explain these results by alleging inefficient treatment or administration to be the cause. To meet these views more and more money will be spent, and one can only hope that ultimately there will be results commensurate with the expenditure. There can be no question that children in the early stage of tuberculosis, and in the state of malnutrition which

renders them especially susceptible to the disease, are very greatly benefited by open-air treatment, but in many cases this improvement is only temporary, a return to home conditions gradually dissipating the energy they had acquired at the sanatorium. Dr. Thresh is, however, of opinion that on the whole the results in the case of children are more enduring than in the case of adults. With adults the institutional treatment has a distinct educational value, but the curative effect is too often neutralised by worry. Patients worry over their family affairs, they are in doubt as to what is going on at home during their absence, and often they worry, and very naturally, about the future. Something should be done to relieve them of such anxieties, a very difficult but most important problem towards which far more attention should be directed, since until it is solved sanatorium treatment can never be a real success. The State, having once taken charge of the consumptive, should, in Dr. Thresh's view, look after him in loco parentis until his health is fully restored or death has released him from his suffering. The present half measures cannot be expected to have more than a temporary effect, and it is to be hoped that the Ministry of Health will cause the fullest inquiries to be made with reference to the results obtained by the present system with the view of modifying it or supplementing it so as to secure more permanent benefit. We quite agree that, now that the war is over, some such inquiry as that suggested by Dr. Thresh is urgently required, and we hope that the Ministry of Health will lose no time in instituting it.

Having referred to the various sanitary developments in Essex during the last 29 years, Dr. Thresh goes on to compare the mortality statistics at the commencement of the period with those at the end of it, and in order to make the results more reliable he takes the averages for the five years 1890–94 and for 1914–18. This shows that the death-rate from all causes has fallen 18 per cent. The mortality among infants has fallen 37 per cent., whilst the infectious diseases—namely, scarlet fever, small-pox, diphtheria, typhoid fever, measles, and whooping-cough—have decreased no less than 70 per cent. Enteric fever has fallen 80 per cent. Pulmonary tuberculosis had decreased by 33 per cent. before the county campaign for its prevention had commenced, but since then it has increased and the fall now is only 14 per cent. Cancer has increased by 74 per cent. The statistics as a whole are very satisfactory. Had the death-rate for 1890–94 continued to the present time, the deaths in the present administrative county would have been 18 per cent. more than they are. In other words, there has been in recent years a saving of about 2600 lives per annum, and of these about 260 would be infants under 1 year of age. The deaths from infectious diseases have fallen to less than one-third of the previous rate, which is a very remarkable decrease. In Dr. Thresh's view the money spent in sanitary improvements during the last 30 years has been remunerative, and more than commensurate with the expenditure. We do not think anyone will disagree with him.

*City of Birmingham.*

In common with most other districts in the United Kingdom, Birmingham suffered from a severe epidemic of influenza during 1918, a brief account of which is given by Dr. John Robertson in his annual report for the year in question. The first epidemic wave of the disease commenced in the city in the middle of June, and had come to an end by the third week in July. For practical purposes it may be said to have lasted six weeks, the weather conditions during the period having been warm and dry. This wave was distinguished from the two that followed it by the great rapidity with which the disease spread over the whole of Birmingham, the number of persons attacked being larger than in the subsequent outbreaks. The onset of the malady was usually sudden and often alarming in character, and the accompanying prostration severe. The duration of the malady was short, most of the patients being able to resume work in four or five days. After the first wave had subsided there was an interval of ten weeks, during which few, if any, new cases occurred. Then, between the first week in October and the last week in December, there was a second epidemic wave of great virulence, attacking many of those who had escaped during the summer epidemic. The weather was at the time cold and for the most part dry. The symptoms were similar to those observed in connexion with the summer cases, but more severe in character. Some patients died of influenzal toxæmia in 24 to 48 hours. Many died of acute pneumonia, which, in the majority of cases, was of the nature of a confluent broncho-pneumonia, with some purulent bronchitis. No account is given in this report of the third epidemic wave of influenza in Birmingham, which, presumably, occurred in the early part of 1919. Dr. Robertson states that there appeared to be some evidence that an attack of influenza in June protected against an attack in November, but this was by no means absolute. There is no doubt that a large part of the whole population escaped the disease although frequently exposed to the infection—namely, doctors, nurses, and those looking after the sick. There is, therefore, sufficient evidence that not only does the natural immunity of individuals vary in degree, but also that acquired immunity varies in different individuals.

Among the preventive measures adopted in Birmingham may be mentioned the issue of handbills and the closure of kinemas, while the local press were most helpful in making known from day to day points which were thought to be of general importance. Extra visiting nurses were attached to the district nursing societies, and were found to be most valuable. Some hospital accommodation was made available in the general hospitals, in the union infirmaries, and in the City Hospital, Little Bromwich, for severe cases in which adequate nursing could not be obtained at home. During 1918 there were 2172 deaths directly attributable to influenza and in addition an excessive mortality from pneumonia of 256 deaths above the average. It is, indeed, safe to say that influenza was directly or indirectly the cause of at least 2500 deaths in Birmingham. That is, one out of every five deaths which occurred during the year was due to influenza. Had the disease not visited the city the death-rate would have been 12·4 instead of 15·2 per 1000 of the population.

Dr. Robertson's report also contains an interesting account of an inquiry into the ventilation of kinematograph theatres by Dr. W. H. Davison, assistant medical officer of health, and, in view of the widespread interest in this subject, Dr. Davison's conclusions and recommendations may be quoted. The conclusions are as follows:—

(1) The existing means of ventilation in a considerable number of kinematograph exhibitions is insufficient, and it is impossible to adequately ventilate buildings of this type by ducts in the roof unprovided with fans. It is only by the employment of fans that anything approaching adequate ventilation can be secured.

(2) Better ventilation could be secured in the majority of kinematograph exhibitions with the existing plant working regularly and efficiently. Interference with the fresh air inlets and failure to keep the ducts and fans clean contribute to the unsatisfactory results obtained.

(3) At present there is considerable delay in effecting the necessary repairs to the ventilating plant.

(4) The area of the fresh-air inlets is inadequate in many cases, and there is a tendency to close these openings.

(5) More satisfactory arrangements could be made for heating of fresh air supplied and the prevention of draught arising from the fresh-air inlets by placing the radiators in front of or under these openings.

(6) As regards lighting there does not appear to be any objection to the provision of windows provided they are properly screened.

The following recommendations are made:—

(1) That such a standard of ventilation be prescribed for the kinematograph exhibitions in the city that the proportion of carbonic acid in the air at about the breathing level should not rise beyond 20 volumes per 10,000 of air.

(2) That the space allowed per person should be fixed at a minimum of 120 cubic feet.

(3) That any defects in the fans or other means of ventilation should be reported immediately to the managers, and a book provided in which a record is kept stating the nature of the defect, when it was discovered, and steps taken to have the necessary repairs effected. This record to be available

for inspection by the justices on application for renewal of the licence.

(4) That all fans be tested either before or immediately on being placed in position, in order to ascertain their efficiency for the work they are required to do.

(5) That an automatic indicator, such as a coloured light, be fixed in a prominent position in the building indicating when the fans are working.

(6) That the fresh-air inlets be kept freely open, and that all means of regulating the size of these openings or of closing them be removed.

(7) That every house be provided with a thermometer.

(8) That the provision of windows and the position of entrance and exit doors be considered in relation to the flushing of the building with fresh air during intervals in the performance and during cleaning operations.

## VITAL STATISTICS OF ENGLAND AND WALES FOR 1919.

THE following statement shows the birth- and death-rates and the rates of infant mortality in England and Wales, and in certain parts of the country, during the year 1919, the figures being provisional:—

| — | Birth-rate per 1000 total population. | Civilian death-rate per 1000 civilian population (crude rate). | Deaths under 1 year per 1000 births. |
|---|---|---|---|
| England and Wales* ... ... ... | 18·5 | ? | 89 |
| 96 great towns, including London (populations exceeding 50,000 at the Census of 1911) ... ... ... | 19·1 | 13·9 | 93 |
| 148 smaller towns (populations from 20,000 to 50,000 at the Census of 1911) ... ... ... ... | 18·4 | 12·7 | 90 |
| London ... ... ... ... ... ... | 18·6 | 13·6 | 85 |

* The civilian death-rate for England and Wales cannot be stated at present, the number of non-civilian deaths in the fourth quarter of 1919 not being available.

## VITAL STATISTICS OF LONDON DURING DECEMBER, 1919.

IN the accompanying table will be found summarised statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious disease it appears that the number of persons reported to be suffering from one or other of the ten diseases notified in the table was equal to an annual rate of 10·7 per 1000 of the population, estimated at 4,026,901 persons; in the three preceding months the rates had been 6·6, 10·1, and 11·1 per 1000. Among the metropolitan boroughs the lowest rates from these diseases were recorded in Kensington, Hammersmith, Fulham, St. Marylebone, Hampstead, and the City of London; and the highest in Finsbury, Bethnal Green, Lambeth, Deptford, Greenwich, and Lewisham. The prevalence of scarlet fever showed a slight decrease from that recorded in the preceding month; this disease was proportionally most prevalent in Chelsea, Islington, Finsbury, Southwark, Lambeth, Battersea, Greenwich, and Lewisham. The Metropolitan Asylums Hospitals contained 2841 scarlet fever patients at the end of the month, against 1633, 2293, and 2848 at the end of the three preceding months; the weekly admissions averaged 350, against 265, 340, and 427 in the three preceding months. Diphtheria was slightly more prevalent than in the preceding month, and the number of cases notified during December was higher than in any month of the last two years; the greatest proportional prevalence of this disease was recorded last month in Hammersmith, Hackney, Holborn, the City of London, Bethnal Green, Stepney, and Deptford. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 1168, 1405, and 1572 at the end of the three preceding months, further rose to 1845 at the end of December; the weekly admissions averaged 239 against 180, 207, and 215 in the three preceding months. The prevalence of enteric fever was considerably less than in the preceding month; the 25 cases notified last month included 5 in Kensington, and 2 each in Paddington, St. Pancras, Hackney, and Woolwich. There were 25 cases of enteric fever under treatment in the Metropolitan Asylums Hospitals at the end of the month, against 49, 47, and 44 at the end of the three preceding months; the weekly admissions averaged 2, against 7, 6, and 5 in the three preceding months. Erysipelas was proportionally most prevalent in Finsbury, Shoreditch,

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING DECEMBER, 1919.
(*Specially compiled for* THE LANCET.)

| CITIES AND BOROUGHS. | Estimated civil population, 1917. | Notified Cases of Infectious Disease. | | | | | | | | | | | Deaths from Principal Infectious Diseases. | | | | | | | | Deaths from all causes. | Death-rate per 1000 living. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Small-pox. | Scarlet fever. | Diphtheria.* | Typhus fever. | Enteric fever. | Other continued fevers. | Puerperal fever. | Erysipelas. | Cerebro-spinal meningitis. | Poliomyelitis. | Total. | Annual rate per 1000 persons living. | Small-pox. | Measles. | Scarlet fever. | Diphtheria.* | Whooping-cough. | Enteric fever. | Diarrhœa and enteritis (under 2 years). | Total. | Annual rate per 1000 persons living. | | |
| LONDON ... ... | 4,026,901 | — | 2159 | 1447 | 1 | 25 | — | 45 | 449 | 11 | 4 | 4141 | 10·7 | — | 61 | 23 | 145 | 58 | 4 | 78 | 369 | 1·0 | 5462 | 14·1 |
| *West Districts:* | | | | | | | | | | | | | | | | | | | | | | | | |
| Paddington ... ... | 122,507 | — | 43 | 52 | — | 2 | — | 2 | 11 | — | — | 110 | 9·4 | — | — | 1 | 4 | 1 | — | 5 | 11 | 0·9 | 189 | 16·1 |
| Kensington ... ... | 151,535 | — | 51 | 39 | — | 5 | — | 1 | 16 | — | — | 112 | 7·7 | — | — | — | 3 | — | — | 2 | 5 | 0·3 | 209 | 14·4 |
| Hammersmith ... | 114,952 | — | 22 | 50 | — | 1 | — | 2 | 14 | — | — | 89 | 8·1 | — | — | — | 6 | 3 | — | 4 | 13 | 1·2 | 128 | 11·6 |
| Fulham ... ... ... | 145,186 | — | 41 | 43 | — | 1 | — | 2 | 13 | — | — | 100 | 7·2 | — | 2 | — | 4 | — | — | — | 6 | 0·4 | 167 | 12·0 |
| Chelsea ... ... ... | 57,368 | — | 39 | 12 | — | 1 | — | 1 | 6 | — | — | 59 | 10·7 | — | 1 | — | — | — | — | 1 | 1 | 0·2 | 75 | 13·6 |
| CityofWestminst'r | 122,046 | — | 65 | 23 | — | 1 | — | 1 | 15 | — | — | 105 | 9·0 | — | 1 | — | 2 | — | — | 1 | 4 | 0·3 | 157 | 13·4 |
| *North Districts:* | | | | | | | | | | | | | | | | | | | | | | | | |
| St. Marylebone ... | 92,796 | — | 47 | 15 | — | — | — | 2 | 3 | — | — | 67 | 7·5 | — | — | — | 1 | 1 | — | 1 | 3 | 0·3 | 132 | 14·8 |
| Hampstead ... ... | 75,649 | — | 23 | 17 | — | — | — | 1 | 5 | — | — | 46 | 6·3 | — | — | — | 3 | — | — | 1 | 4 | 0·6 | 94 | 13·0 |
| St. Pancras ... ... | 186,600 | — | 107 | 40 | — | 2 | — | 2 | 19 | 3 | 1 | 174 | 9·7 | — | — | — | 3 | — | 1 | 3 | 7 | 0·4 | 255 | 14·3 |
| Islington ... ... ... | 297,102 | — | 210 | 104 | — | 1 | — | — | 30 | — | 1 | 346 | 12·1 | — | 4 | 6 | 8 | 5 | — | 4 | 27 | 0·9 | 415 | 14·6 |
| Stoke Newington... | 47,426 | — | 24 | 14 | — | — | — | — | 2 | — | — | 40 | 8·8 | — | — | — | — | 1 | — | 1 | 2 | 0·4 | 61 | 13·4 |
| Hackney ... ... ... | 196,598 | — | 98 | 87 | — | 2 | — | 1 | 12 | — | — | 200 | 10·6 | — | 2 | 2 | 13 | 4 | — | 8 | 29 | 1·5 | 251 | 13·3 |
| *Central Districts:* | | | | | | | | | | | | | | | | | | | | | | | | |
| Holborn ... ... ... | 35,303 | — | 11 | 21 | — | — | — | — | 4 | — | — | 36 | 10·6 | — | 1 | — | 1 | — | — | 1 | 3 | 0·9 | 48 | 14·2 |
| Finsbury ... ... ... | 68,011 | — | 46 | 29 | — | — | — | 1 | 12 | 1 | — | 89 | 13·6 | — | 4 | — | 4 | — | — | 4 | 12 | 1·8 | 112 | 17·2 |
| City of London ... | 16,138 | — | 3 | 7 | — | — | — | — | 1 | — | — | 11 | 7·1 | — | — | — | — | — | — | — | — | — | 23 | 14·9 |
| *East Districts:* | | | | | | | | | | | | | | | | | | | | | | | | |
| Shoreditch ... ... | 89,675 | — | 48 | 36 | — | — | — | 1 | 14 | — | — | 99 | 11·5 | — | 10 | — | 7 | 1 | — | 1 | 19 | 2·2 | 175 | 20·4 |
| Bethnal Green ... | 107,362 | — | 39 | 103 | — | — | — | 1 | 19 | — | — | 162 | 15·7 | — | — | — | 14 | 5 | — | 4 | 23 | 2·2 | 150 | 14·6 |
| Stepney ... ... ... | 232,010 | — | 107 | 110 | — | 1 | — | 2 | 29 | — | — | 249 | 11·2 | — | 3 | — | 8 | 9 | 1 | 1 | 22 | 1·0 | 310 | 13·9 |
| Poplar ... ... ... | 143,443 | — | 67 | 40 | — | 1 | — | 3 | 11 | — | — | 122 | 8·9 | — | 1 | 1 | 3 | 6 | — | 5 | 16 | 1·2 | 216 | 15·7 |
| *South Districts:* | | | | | | | | | | | | | | | | | | | | | | | | |
| Southwark ... ... | 167,936 | — | 113 | 57 | — | — | — | 2 | 31 | — | — | 203 | 12·6 | — | 4 | — | 7 | 4 | 1 | 4 | 20 | 1·2 | 261 | 16·2 |
| Bermondsey ... ... | 107,635 | — | 49 | 31 | 1 | 1 | — | 1 | 18 | — | — | 101 | 9·8 | — | 9 | 1 | 6 | 3 | — | — | 19 | 1·8 | 192 | 18·6 |
| Lambeth... ... ... | 272,038 | — | 192 | 111 | — | 1 | — | 4 | 41 | — | — | 349 | 13·4 | — | 8 | 3 | 12 | 3 | — | 3 | 29 | 1·1 | 390 | 15·0 |
| Battersea ... ... | 150,023 | — | 108 | 40 | — | 1 | — | 4 | 19 | 1 | — | 173 | 12·0 | — | — | 1 | 2 | 2 | — | 4 | 9 | 0·6 | 172 | 12·0 |
| Wandsworth... ... | 300,787 | — | 141 | 117 | — | — | — | 5 | 30 | 1 | 1 | 295 | 10·2 | — | — | 1 | 6 | 3 | — | 2 | 12 | 0·4 | 335 | 11·6 |
| Camberwell ... ... | 239,461 | — | 134 | 63 | — | 1 | — | 3 | 26 | 1 | — | 228 | 9·9 | — | 4 | 1 | 6 | 3 | — | 11 | 25 | 1·1 | 321 | 14·0 |
| Deptford... ... ... | 103,527 | — | 67 | 60 | — | — | — | 2 | 9 | — | — | 138 | 13·9 | — | 3 | 3 | 6 | 1 | — | 2 | 15 | 1·5 | 156 | 15·7 |
| Greenwich ... ... | 90,440 | — | 67 | 35 | — | — | — | — | 10 | — | — | 112 | 12·9 | — | 2 | 1 | 6 | — | — | 3 | 12 | 1·4 | 136 | 15·7 |
| Lewisham ... ... | 161,405 | — | 147 | 42 | — | 1 | — | 1 | 17 | 2 | 1 | 211 | 13·6 | — | — | 2 | 4 | 1 | — | — | 7 | 0·5 | 168 | 10·9 |
| Woolwich ... ... | 131,942 | — | 49 | 49 | — | 2 | — | — | 12 | 2 | — | 114 | 9·0 | — | 2 | — | 6 | 2 | 1 | 3 | 14 | 1·1 | 164 | 13·0 |
| Port of London ... | — | — | 1 | — | — | — | — | — | — | — | — | 1 | — | — | — | — | — | — | — | — | — | — | — | — |

* Including membranous croup.

Bethnal Green, Southwark, Bermondsey, and Lambeth. Of the 11 cases of cerebro-spinal meningitis, 3 belonged to St. Pancras, 2 to Lewisham, and 2 to Woolwich; while the 4 cases of poliomyelitis belonged respectively to St. Pancras, Islington, Wandsworth, and Lewisham.

The mortality statistics in the table relate to the deaths of civilians actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the five weeks ended Jan. 3rd, the deaths of 5462 London residents were registered, equal to an annual rate of 14·1 per 1000; in the three preceding months the rates had been 11·2, 14·1, and 14·6 per 1000. The death-rates ranged last month from 10·9 in Lewisham, 11·6 in Hammersmith, 11·6 in Wandsworth, 12·0 in Fulham, and 12·0 in Battersea, to 16·1 in Paddington, 16·2 in Southwark, 17·2 in Finsbury, 18·6 in Bermondsey, and 20·4 in Shoreditch. The 5462 deaths from all causes included 369 which were referred to the principal infectious diseases; of these 61 resulted from measles, 23 from scarlet fever, 145 from diphtheria, 58 from whooping-cough, 4 from enteric fever, and 78 from diarrhœa and enteritis among children under 2 years of age. No death from any of these diseases was recorded last month in the City of London. Among the metropolitan boroughs the lowest death-rates from these diseases were recorded in Kensington, Fulham, Chelsea, the City of Westminster, St. Marylebone, St. Pancras, Stoke Newington, and Wandsworth, and the highest in Hackney, Finsbury, Shoreditch, Bethnal Green, Bermondsey, and Deptford. The 61 deaths from measles were less than half the average number in the corresponding period of the five preceding years; this disease was proportionally most fatal last month in Finsbury, Shoreditch, Bermondsey, Lambeth, and Deptford. The 23 fatal cases of scarlet fever were 4 more than the average number, and included 6 in Islington, 3 in Lambeth, 3 in Deptford, 2 in Hackney, and 2 in Lewisham. The 145 deaths from diphtheria were nearly double the average; the greatest proportional mortality from this disease occurred in Hackney, Finsbury, Shoreditch, Bethnal Green, Deptford, and Greenwich. The 58 fatal cases of whooping-cough were equal to the average number; this disease was proportionally most fatal in Hammersmith, Bethnal Green, Stepney, Poplar, Southwark, and Bermondsey. Four deaths from enteric fever were registered during the month, against an average of 9. The 78 fatal cases of infantile diarrhœa were 26 below the average; the greatest proportional mortality from this disease occurred in Paddington, Hammersmith, Hackney, Finsbury, Bethnal Green, Poplar, and Camberwell. In conclusion, it may be stated that the aggregate mortality in London during December from these principal infectious diseases was 6·8 per cent. below the average.

(Week ended Jan. 24th, 1920.)

*English and Welsh Towns.*—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had been 16·2, 15·8, and 15·6 in the three preceding weeks, further declined to 15·3 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 15·1, or 0·7 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 5·1 in Aberdare, 7·1 in Gillingham, and 8·7 in Southend-on-Sea, to 24·1 in Grimsby, 25·0 in South Shields, and 27·5 in Carlisle. The principal epidemic diseases caused 351 deaths, which corresponded to an annual rate of 1·1 per 1000, and comprised 96 from measles, 84 from whooping-cough, 77 from diphtheria, 71 from infantile diarrhœa, 18 from scarlet fever, and 15 from enteric fever. Measles caused a death-rate of 1·5 in Preston, 2·0 in Dewsbury, 2·3 in Bootle, and 4·7 in Grimsby; and whooping-cough of 1·1 in Portsmouth, 1·6 in Birkenhead, 1·8 in Walsall, and 2·2 in Smethwick. The 85 deaths from influenza showed an increase of 23 compared with the previous week, and included 24 in London, 9 in Leeds, and 3 each in Birmingham, Manchester, and Newcastle-upon-Tyne. There were 2614 cases of scarlet fever and 1994 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2758 and 1945 respectively at the end of the previous week. The causes of 42 deaths in the 96 towns were uncertified, of which 7 were registered in Birmingham, 6 in Liverpool, and 3 each in Birkenhead and St. Helens.

*Scotch Towns.*—In the 16 largest Scotch towns, with an aggregate population estimated at 2,400,000 persons, the annual rate of mortality, which had been 15·9, 16·6, and 16·1 in the three preceding weeks, fell to 15·3 per 1000. The 356 deaths in Glasgow corresponded to an annual rate of 16·7 per 1000, and included 6 from infantile diarrhœa, 4 from measles, 3 from diphtheria, and 1 each from enteric fever and whooping-cough. The 100 deaths in Edinburgh were equal to a rate of 15·3 per 1000, and included 2 from measles and 1 from diphtheria.

# The Services.

## ARMY PAY OF CIVILIAN MEDICAL PRACTITIONERS.

A ROYAL Warrant increases the rate of remuneration of civilian medical practitioners engaged under the Pay Warrant to render medical attendance and examine recruits where army medical practitioners are not available. The substituted rates for medical attendance (including vaccination and cost of medicines) are £7 10*s.* a year if there are fewer than 10 persons entitled to medical attendance, and when there are 10 persons or more £15 for every complete 25, or portion of 25, provided that the total emoluments for all services, exclusive of the examination of recruits, shall not in any instance exceed £1 10*s.* for any one day. The increase is in general on a 50 per cent. basis. For examination of recruits 2*s.* 6*d.* is allowed for each recruit for the Regular Forces, subject to a maximum of £2 a day for services under this head.

## ARMY MEDICAL SERVICE.

Temp. Col. W. Hunter, C.B. (Captain, R.A.M.C., T.F.), relinquishes his temporary commission on reposting.

## ROYAL ARMY MEDICAL CORPS.

The undermentioned to be acting Colonel: Major (acting Lieut.-Col.) G. W. Heron.

The undermentioned to be acting Lieutenant-Colonels: Major T. H. Scott; Capt. C. H. K. Smith; Temp. Capt. A. J. Blake.

The undermentioned relinquish the acting rank of Lieutenant-Colonel: Majors W. H. Forsyth, A. W. Gater, B. A. Odlum, R. B. Hole, W. I. Thompson, E. G. Ffrench, T. B. Unwin, O. Ievers; Majors and Bt. Lieut.-Cols. D. S. Skelton, M. G. Winder; Capts. A. J. Hickey, L. T. Poole, G. H. Stacke, W. D. Anderton.

Temp. Major W. E. Home to be acting Lieutenant-Colonel whilst commanding troops on a hospital ship.

Major and Bt. Lieut.-Col. D. S. Skelton is seconded for service under the Colonial Office.

Major J. E. H. Gatt retires on retired pay.

Major E. G. R. Lithgow is restored to the establishment.

Temp. Capt. (acting Major) W. M. Oakden relinquishes the pay and allowances of his acting rank.

The undermentioned relinquish the acting rank of Major: Capts. J. P. Litt, T. F. Kennedy, G. E. A. Argo, F. G. Flood, G. G. B. Holroyde, S. J. L. Lindeman, F. R. H. Mollan, H. W. Browne; Temp. Capts. R. B. Blair, H. B. G. Russell, R. A. Steven, R. W. S. Christmas, V. L. Connolly, W. C. Horton, R. Thomson, C. C. Harrison, A. Brown, A. M. Malcolmson, A. E. Quine, W. D. Cruickshank, R. S. S. Statham, C. N. Coad, A. Scott, F. C. Lees, W. Montgomery, S. J. W. Donald, F. De S. McMenamin, H. W. Turner, S. E. Picken.

Temp. Capt. R. Scott to be acting Major.

Capt. J. P. Quinn resigns his commission.

F. J. Waldmeier, late temporary Captain, and Temp. Lieut. S. P. Hyam to be temporary Captains.

H. P. Hodge to be temporary Lieutenant.

Officers relinquishing their commissions:—Temp. Lieut.-Cols. J. F. Haswell and H. J. Roberts (Lieutenant-Colonel, T.F. Reserve). Temporary Majors retaining the rank of Major: S. A. Smith (Major, Canadian A.M.C.) and J. A. Devine. Temp. Capt. W. N. Parker (granted rank of Lieutenant-Colonel). Temporary Captains granted the rank of Major: V. L. Connolly, W. D. Cruickshank, E. B. Gunson, I. Jones, C. N. Coad, C. E. Walker. Temporary Captains retaining the rank of Captain: T. Howell, E. U. Williams, S. J. Graham, J. B. Mason, J. A. Frost, R. J. Wilson, F. A. Kerr, J. S. Prentice, A. T. Gibb, J. R. Pate, R. G. Barlow, J. Campbell, O. G. Evans, H. F. Ferguson, R. J. B. Leney, G. H. Fraser, R. M. De Mowbray, S. C. W. Iredale, J. Hill, E. W. L. Sharp, W. Duffy, R. C. Hewitt, M. K. Robertson, G. C. Hartley, W. Gemmill, T. F. Ryan, C. A. D. Bryan, C. H. G. Lyall, R. H. Fletcher, H. G. Baynes.

### GENERAL RESERVE OF OFFICERS.

Capt. F. E. Bissell (late Captain, R.A.M.C., Special Reserve) is granted the rank of Lieutenant-Colonel on ceasing to be employed.

### SPECIAL RESERVE OF OFFICERS.

Capt. E. M. Cowell relinquishes the acting rank of Lieutenant-Colonel.

The undermentioned Captains relinquish the acting rank of Major: D. Dougal, K. K. Drury.

Captains relinquishing their commissions and granted the rank of Major: M. W. Ruthven, H. C. Rook, T. Lindsay, T. McEwen.

Captains relinquishing their commissions and retaining the rank of Captain: N. S. R. Lorraine, G. E. Shand, W. C. Davidson, J. C. A. McCalden, R. Stewart, F. Balkwill, T. G. James, J. R. Cox, H. E. Bamber, W. Feldman, G. H. Gidlow-Jackson, J. Taylor, R. F. Pinson, N. H. Harrison, J. Y. McLean, T. W. Wylie, R. A. Stewart, S. D. G. McEntire, P. MacCallum, J. R. John.

Lieut. R. Graham relinquishes his commission and retains the rank of Lieutenant.

TERRITORIAL FORCE.

Major (acting Col.) C. H. Lindsay, C.M.G., relinquishes the acting rank of Colonel on vacating the appointment of Assistant Director of Medical Services.

Capt. E. F. Buzzard, A.M.S., from 5th London General Hospital, to be Colonel.

Capts. (acting Lieut.-Cols.) O. W. D. Steel and C. H. J. Fagan relinquish the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

Capts. (acting Majors) C. G. Strachan and B. M. Footner relinquish the acting rank of Major on ceasing to be specially employed.

Capt. G. A. Williamson is seconded for service with the Aberdeen University Contingent, Senior Division, O.T.C., and is appointed to command the Unit.

Capt. A. Mitchell is seconded.

2nd London Sanitary Company: Capt. H. Jessop relinquishes his commission and retains the rank of Captain. Lieut. A. S. Reeves to be Captain.

1st Eastern General Hospital: Major H. B. Roderick is seconded for service with the Cambridge University Contingent (Medical Unit), Senior Division, O.T.C.

2nd South-Western Mounted Brigade Field Ambulance: Capt. (temp. Major) J. M. Dupont relinquishes the temporary rank of Major on ceasing to be specially employed.

3rd Southern General Hospital: Capt. (acting Major) R. Ritson relinquishes the acting rank of Major on ceasing to be specially employed, and is restored to the establishment.

2nd Western General Hospital: Major (acting Lieut.-Col.) A. Wilson relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

Supernumerary for Service with the Officers' Training Corps: F. C. Purser (Major in Army) to be Captain for service with Medical Unit, Royal College of Surgeons, Ireland, O.T.C.

## ROYAL AIR FORCE.

*Medical Branch.*—Flight Lieut. J. E. Dunbar (Captain, R.A.M.C., T.F.) relinquishes his temporary R.A.F. commission on return to Army duty.

Capt. J. Paxton and Lieut. (acting Capt.) C. Duggan are transferred to the unemployed list.

*Dental Branch.*—D. Blair is granted a temporary commission as Flight Lieutenant.

## INDIAN MEDICAL SERVICE.

Captain to be Major: J. B. Hanafin. Captains to be temporary Majors: J. R. D. Webb, R. B. Nicholson, W. R. Stewart. Temporary Lieutenants to be temporary Captains: A. M. V. Hesterlow, Jatindra Mohan Mukharji, Balbir Singh, Sukumar Sanyal, Oyitti Churia Madhavan, Gopal Narayan Khanna, Bhuthapuri Thevapperumal Krishnan, Indra Narayan Sen Gupta, Mervanji Dinshah Printer, Shankar Ganesh Chavan, Periyatan Katinjippally Raman Nambiar, Kesheo Ganesh Mohile, Amulya Chandra Roy, Valente de Souza, Narayana Subrahmania Aiyar, Brij Ratan Jain, Chandrian Krishna Row, Ganesh Dattatraya Apte, Pandipeddi Kutumbiah, Coimbatore Sivaramkrishna Suryanarayan Sarma, Bamanji Pestanji Daruwala, Gautam Kumar, Chenji Krishnaswami Pillay, Prabodh Nath Bagchi, Kailashnath Waghray, Dhirendra Chandra Mazumdar, Jagan Nath Goil, Sahibzada Ahmed Khan, Mangalore Subba Rao, Kali Sahai Nigam, E. Nissim.

## THE HONOURS LIST.

THE following awards to medical officers, for gallantry and devotion to duty in the places mentioned, are announced:—

*C.B.E.*

Major (temp. Col.) J. T. Clarke, C.A.M.C. (Siberia).

*Military Cross.*

Capt. James Vallance, R.A.M.C. (North Russia).

For great gallantry and devotion to duty in dressing and attending wounded under fire. As each objective was gained he followed up immediately, dressing and bringing in all wounded on his way. In one village the Bolsheviks landed a party of sailors, and it was only through his untiring efforts that the wounded were removed to a place of safety.

Temp. Asst. Surg. James Michael Connor, I.M.D. (India).

For marked gallantry and devotion to duty at Barley Hill Piquet on July 18th, 1919. He went out from Fort Maude, and, after being wounded himself, attended the wounded under fire until they were evacuated. He was again wounded while leaving, but continued at duty at Fort Maude until the 20th.

## BROUGHT TO NOTICE.

The names of the following members of the I.M.S. have been brought to the notice of the Secretary of State for War for valuable services rendered in India during the war:—Lt.-Col. H. Boulton; Lt.-Col. (temp. Col.) H. Burden, C.I.E.; Capt. J. B. Hanafin; Maj. (acting Lt.-Col.) J. B. D. Hunter; Capt. J. A. A. Kernahan; Capt. (temp. Lt.-Col.) J. V. Macdonald; Temp. Lt. L. J. P. Mordaunt; Capt. R. R. M. Porter; Capt. J. A. Sinton, V.C.; Temp. Lt. Mahomed Nawaz; Capt. (temp. Maj.) M. A. Rahman.

And the name of the following member of the Canadian A.M.C. for valuable and distinguished services rendered in connexion with military operations in Siberia:—Maj. (temp. Col.) J. T. Clarke.

## FOREIGN DECORATIONS.

*American.*

*Distinguished Service Medal.*—Hon. Maj.-Gen. Sir A. A. Bowlby, Kt., K.C.B., K.C.M.G., K.C.V.O.; Temp. Maj.-Gen. Sir R. Jones, Kt., K.B.E., C.B., T.D., A.M.S.; Maj.-Gen. Sir H. N. Thompson, K.C.M.G., C.B., D.S.O., late R.A.M.C.; Hon. Maj.-Gen. Sir C. S. Wallace, K.C.M.G., C.B., late R.A.M.C.

*Egyptian.*

*Order of the Nile.—3rd Class:* Lt.-Col. C. H. Anderson, M.C., Austr. A.M.C.; Maj. and Bt. Lt.-Col. (acting Lt.-Col.) H. V. Bagshawe, C.B.E., D.S.O., R.A.M.C.; Capt. (acting Lt.-Col.) H. S. Beadles, R.A.M.C. (T.F.); Maj. (acting Lt.-Col.) A. G. Coullie, I.M.S.; Lt.-Col. (temp. Col.) T. H. Forrest, D.S.O., R.A.M.C. (T.F.); Maj. (acting Lt.-Col.) G. W. Heron, D.S.O., O.B.E., R.A.M.C.; Maj. A. W. Moore, O.B.E., R.A.M.C. (T.F.); Lt.-Col. P. S. Lelean, C.B., R.A.M.C. *4th Class:* Maj. L. A. Avery, D.S.O., R.A.M.C. (T.F.); Capt. A. L. Sheppard, I.M.S.

*French.*

*Légion d'Honneur.—Officier:* Col. J. C. B. Statham, C.M.G., C.B.E., late R.A.M.C. *Chevalier:* Lt.-Col. R. de L. Harwood, C.A.M.C.

*Croix de Guerre.*—Capt. (acting Maj.) J. C. Sproule, R.A.M.C.

*Ordre du Mérite Agricole.—Chevalier:* Capt. J. Clayton, R.A.M.C. (T.F.); Capt. J. D. Davidson, R.A.M.C. (T.F.); J. Golding, D.S.O., R.A.M.C. (T.F.).

*Hellenic.*

*Order of the Redeemer.—Chevalier:* Capt. W. L. Murphy, R.A.M.C. (T.F.). *Officer:* Surg.-Cdr. R. W. B. Hall, R.N.

*Greek Medal for Military Merit.—3rd Class:* Temp. Capt. (acting Maj.) P. M. Heath, R.A.M.C.; Temp. Capt. (acting Maj.) R. Scott, R.A.M.C.; Capt. H. E. Smith, R.A.M.C. (T.F.); Temp. Maj. J. H. Spencer, R.A.M.C.; Lt.-Col. A. D. Waring, R.A.M.C. *4th Class:* Temp. Capt. R. E. G. Gray, R.A.M.C.; Capt. J. Ratcliffe, R.A.M.C. (S.R.); Temp. Capt. C. S. Thomson, R.A.M.C.

*Hedjaz.*

*Order of El Nahda.—3rd Class:* Capt. and Bt. Maj. (acting Maj.) W. E. Marshall, M.C., R.A.M.C.

*Persian.*

*Order of the Lion and Sun.—3rd Class:* Capt. C. J. Stocker, M.C., I.M.S.

*Portuguese.*

*Military Order of Avis.—Commander:* Temp. Lt.-Col. G. H. Usmar, O.B.E., S. Afr. M.C. *Chevalier:* Capt. F. B. Smith, M.C., R.A.M.C. (T.F.).

*Serbian.*

*Order of St. Sava.—5th Class:* Lt. (temp. Capt.) A. G. Harsant, R.A.M.C. (S.R.); Temp. Capt. (acting Maj.) W. H. Peacock, R.A.M.C.; Capt. J. Steedman, R.A.M.C. (T.F.); Temp. Capt. (acting Maj.) N. B. Stewart, R.A.M.C.; Temp. Capt. (acting Maj.) W. H. Welsh, R.A.M.C.

*Gold Medal for Zealous Service.*—Capt. P. H. Mitchiner, R.A.M.C. (T.F.).

*Siamese.*

*Order of the White Elephant.—3rd Class:* Capt. and Bt. Maj. R. C. Dun, R.A.M.C. (T.F.); Lt.-Col. R. de L. Harwood, C.A.M.C.; Maj. (acting Lt.-Col.) R. C. Wilson, R.A.M.C.; Lt.-Col. and Bt. Col. Sir E. S. Worthington, K.C.V.O., C.B. *4th Class:* Capt. J. H. A. Paquette, C.A.M.C.

*Order of the Crown of Siam.—2nd Class:* Lt.-Col. H. P. W. Barrow, C.M.G., O.B.E., D.S.O., R.A.M.C.

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THE Lord Mayor will preside at a meeting at the Mansion House on Thursday next, Feb. 5th, at 3.30 P.M., when the Society for the Prevention of Venereal Disease will lay the importance of immediate self-disinfection as a means of preventing the spread of venereal diseases before the City of London. The speakers will include the Lord Mayor, Lord Willoughby de Broke, Lord Riddell, Sir William Arbuthnot Lane, Sir James Crichton-Browne, Sir Ray Lankester, Sir Archdall Reid, and Sir Arthur Sloggett.

THE LATE MR. G. R. GREEN.—George Richard Green, M.R.C.P. Edin. and M.R.C.S. Eng., who died of pneumonia at Portmadoc on Jan. 7th at the age of 61, was educated at Guy's Hospital, qualifying in 1882. Formerly he practised at Ripon and was medical officer of health to the urban district council, honorary surgeon to the cottage hospital, and medical officer to the training college in that city. During the war he had been commandant of the Portmadoc and Criccieth V.A.D.

# Correspondence.

"Audi alteram partem."

## HIGHER QUALIFICATION IN OPHTHALMOLOGY.

*To the Editor of* THE LANCET.

SIR,—In connexion with the interesting article in your issue of Dec. 6th last anent a higher qualification in ophthalmology, I may state that the Royal Faculty of Physicians and Surgeons of Glasgow has for very many years included ophthalmology as one of the subjects of examination for its Fellowship, and at present there is a proposal even further to strengthen the position of ophthalmology as a subject of special examination. Many years ago in the *British Medical Journal* I called attention to what seemed to me a suitable course for ophthalmic surgeons; and more recently, through the great courtesy of the Edinburgh Pathological Club, I have had an opportunity of restating these views, and also made a communication on the subject to the *Ophthalmic Review* in 1916. It has always seemed to me an extraordinary thing that some ophthalmic hospitals should require the senior members of their staff to have spent a great deal of time in the study of anatomy and physiology, which subjects they will forget within a year of their having passed the examination, for the simple reason that they do not form part of their everyday work, and at the same time appoint men on the staff of such hospitals who have never been within the doors of a physical laboratory. Unless a man has a fair working knowledge of trigonometry, of logarithmic arithmetic, and of plane rectangular coördinates, he cannot even read the best books on ophthalmic work. These subjects, no doubt, only concern one part, but a very important part, of ophthalmic practice. In addition to the time passed in a physical laboratory, there should be a considerable amount of time spent in a bacteriological laboratory; for, as I pointed out so far back as 1891, nobody should operate on an eye, except in extreme emergency, without a thorough-going bacteriological investigation of the conjunctiva.—I am, Sir, yours faithfully,

FREELAND FERGUS,
President, Royal Faculty of Physicians and Surgeons,
Jan. 15th, 1920. Glasgow.

## THE PREVENTION OF VENEREAL DISEASE.

*To the Editor of* THE LANCET.

SIR,—The attention of the Society for the Prevention of Venereal Disease has been drawn to a statement recently issued by the general secretary of the National Council for Combating Venereal Disease, which has been published broadcast. The National Council have a perfect right to their own opinions, although most experienced persons will not agree that education as to cause and result of disease, together with treatment, has ever been efficacious in stopping disease, unless accompanied by instructions in regard to prevention.

The National Council, again, insist on local cleanliness, but forget to mention that such local cleanliness is best obtained by the use of antiseptics. They again bring forward the old Australian statistics as evidence that immediate self-disinfection is not efficient. The high incidence of venereal disease among the Australian Forces in the field was due to the fact that only 10 per cent. of the men were supplied with the proper disinfectants and instructions for their use. Wherever immediate self-disinfection was properly applied, venereal disease was practically eliminated.

The National Council proceed to state that the almost unanimous majority of medical officers of health and clinic officers throughout the country are opposed to immediate self-disinfection. Our Grand Committee contains the names of medical officers of health of at least as high standing as those associated with the National Council.

In the next sentence of their statement the National Council compare unfavourably the experience of members of our Society with those of the National Council in regard to prevention and treatment of venereal disease. This is an unfortunate statement for the National Council to have made. We suggest that it would be advisable for the National Council to study the list of our Grand Committee with a little more care, before venturing to suggest that the weight of experienced medical opinion is against us.

The final sentence of the National Council's statement is as incorrect as all the others, for our Society has repeatedly affirmed the importance of other methods of prevention of venereal disease, besides immediate self-disinfection, but has pointed out that moral education takes a generation before its effects are produced, and that in the meantime something must be done at once to check the spread of these diseases.

We are, Sir, yours faithfully,

(Signed) WILLOUGHBY DE BROKE (President),
JAMES CRICHTON-BROWNE, M.D., F.R.S.,
H. BRYAN DONKIN, M.D., F.R.C.P.,
W. ARBUTHNOT LANE, Bt., C.B., M.S.,
ROBERT A. LYSTER, M.D., M.O.H.,
J. Y. W. MACALISTER,
F. W. MOTT, K.B.E., M.D., F.R.S.,
ERIC PRITCHARD, M.D., M.R.C.P.,
G. ARCHDALL REID, K.B.E., F.R.S.E.,
HUMPHRY ROLLESTON, K.C.B., M.D.,
C. W. SALEEBY, M.D., F.R.S.E.,
ARTHUR SLOGGETT, K.C.B., K.C.M.G., K.C.V.O., D.S.O.,
J. H. SEQUEIRA, M.D., F.R.C.P., F.R.C.S.,
R. M. WILSON, M.B., Ch.B.,
H. WANSEY BAYLY, *M.C.*, M.R.C.S.

Jan. 26th, 1920. (Hon. Sec.).

## IS THERE A PARA-SCARLET FEVER?

*To the Editor of* THE LANCET.

SIR,—Certain characteristics of the present epidemic of scarlet fever again raise doubts whether two separate forms of the disease are not confused under a common designation. During the past few months two facts have been noticeable with regard to cases admitted as scarlet fever to the London Fever Hospital. First, the unusual number of relapses in hospital; and second, the number of patients giving a history of what appears to have been a previous undoubted attack of the disease. Most of the cases admitted have been of a benign type and complications have been the exception, although peeled tongue and desquamation have been the rule. On the other hand, there have been a few cases of undoubted septic or malignant character.

One may say at once that none of the milder cases alluded to are German measles; of this I am certain. In these mild cases the rashes have been scarlatiniform from the beginning, and indistinguishable from those which we consider characteristic of scarlet fever, although perhaps more fugitive than usual. Vomiting as an initial symptom has often been absent, pyrexia slight or moderate, the faucial inflammation not severe, tonsillar exudate often absent, and submaxillary adenitis uncommon. Albuminuria, too, has been exceptional. Rather a striking feature has been the unusual number of patients with moderate enlargement of the glands of the posterior triangles of the neck, the axillæ, and the groins.

It will at once be recognised that although the seasonal incidence is different and the tongue has peeled, the clinical characteristics of these mild cases closely conform to those described by Dukes as characteristic of his Fourth Disease—a disease which he considers distinct from scarlet fever, on the one hand, and from German measles on the other. It is, however, plain that these mild cases show a much greater affinity to true scarlet fever than they do to German measles, and the belief has gradually grown up in my own mind that we are dealing with a disease which is related to scarlet fever in the same way that paratyphoid is related to typhoid. Until bacteriological advance renders it possible, such a contention remains a mere hypothesis, but clinical observation of the types of case at present admitted to our scarlet fever wards has led me to suspect strongly that there are two types of scarlet

fever, and that they are not mutually protective. It will be interesting to hear what has been the experience of others who have had to deal with the present outbreak.

I am, Sir, yours faithfully,

Devonshire-place, W., Jan. 24th, 1920. CHARLES R. BOX.

## REINFECTION IN TUBERCULOSIS.

*To the Editor of* THE LANCET.

SIR,—Doubtless all are in sympathy with Dr. Batty Shaw in doing the utmost for the liberty and comfort of the consumptive, but all cannot agree with him in basing a prejudice against the theory of reinfection on such sympathy. Dr. Shaw admits (THE LANCET, Jan. 24th, p. 180) that "it remains a fact that children are universally infected by the tubercle bacillus of the human form." If, then, the sources of infection are so abundant, and if infection is so common that all are infected in childhood, by what new law or new circumstance does reinfection become excluded? Unless a new factor of immense and far-reaching power can be shown to exist, is it not unreasonable to exclude reinfection as of ordinary and frequent occurrence? Nor does the theory or fact of auto-infection affect the question; for if the supposed immunising effect of one focus of infection does not protect from reinfection by bacilli from that focus, how can such supposed immunising effect protect from reinfection from without?

It is difficult to understand the pessimism of the hour, a pessimism that loosens our hold on ascertained facts, in order to launch us once again into a sea of uncertainties. May we not suppose that Dr. Shaw himself recommends patients for sanatorium treatment, warns them against spreading infection, and even warns relations? We all know that by these measures we are doing good, and not harm. Until reinfection is disproved (and the onus of proof rests with the opponents of the theory), surely notification must continue, and the elementary precautions usually enjoined must be followed. At the same time, such aids as the adoption of anti-catarrhal measures will be welcomed. When will the purifying of the atmosphere of our cities become a practical question with our public health authorities?

I am, Sir, yours faithfully,

London, Jan. 26th, 1920. R. M. FENN.

## THE MEANING OF TACHYCARDIA.

*To the Editor of* THE LANCET.

SIR,—I have read with interest the article by Dr. McNair Wilson under the above heading in THE LANCET of Jan. 17th. Tachycardia is a comprehensive term, and the writer admittedly does not deal with the condition in all its aspects or with its origin from all known causes, but with the instability of heart which is frequently observed after various enfeebling ailments and some enfeebling circumstances not infective.

It is not my intention at the moment to question the persistence or otherwise of the toxins to which some such enfeeblements may be assumed to be due, but to welcome the evidence afforded by this article of a recognition of the importance of the neural factor in such conditions. It is not long since some who regarded themselves as specially enlightened exponents of cardiology would have treated the matter with little reference to the innervation of the heart. The "excitatory system" would have been found fully capable of accounting for all the phenomena in question irrespective of any nervous endowment, which was, indeed, usually denied it because such had not been demonstrated. Even the sinu-auricular node, however, —the "pace-maker"—has now been shown to be fully innervated, although modesty forbids my indicating the reference more particularly! There is also some experimental evidence that the "pace-maker" is preponderantly endowed by the right and the auriculo-ventricular node and bundle by the left pneumo-gastric nerve and, of course, also by the sympathetic.

But there is another point which also interests me in this article, inasmuch as it appears to be regarded as novel—namely, the view that cardiac acceleration following vagus depression, irritability, or atony is compensatory. Reference is, certainly, made to a recent contribution of Professor F. A. Bainbridge, in which it is remarked "that acceleration of the pulse can compensate for lessened contractile power in maintaining the output of the heart per minute," a conclusion, I presume, which Professor Bainbridge in no way desires to be regarded as original or novel. I think the impression must be general that this is a venerable commonplace of physiology. In any case it has for long and frequently been impressed on the clinician, and putting aside the less acute enfeeblements with which Dr. Wilson deals, is observed in a very demonstrable manner in the more serious phenomena associated with cardiac failure in angina pectoris. In this connexion I have myself termed the state which usually follows the shock of cardiac pain (if I may be permitted to regard the pain as cardiac) as a "rescuing augmentation and acceleration of the heart's beat."[1] Indeed, the now hoary and usually beneficent experience of the acceleration produced by the nitrites in such cases declares the compensatory nature of tachycardia under these circumstances.

In the cases to which Dr. Wilson refers he will, however, agree that the sooner tachycardia ceases the better will it be for the patient, and that the most efficient remedies are not so much drugs as the posture and relief from activity which reduce heart rate—namely, resting and the employment of such means as will remove the cardiac enfeeblement of which tachycardia is the expression and the rescuing effort.

I am, Sir, yours faithfully,

ALEXANDER BLACKHALL-MORISON.

London, Jan. 19th, 1920.

## A PROFESSOR OF MILITARY MEDICAL HISTORY FOR OUR INDIAN WARS.

*To the Editor of* THE LANCET.

SIR,—We have had during our tenure of India unceasing wars all over that country, and in each case much loss of life has occurred. If one tries to trace out the history of the Indian Medical Service and the part they took with the British Army Medical Service it is exceedingly difficult to find any historic books from which officers could learn to benefit by our failures and obtain fuller instructions when such campaigns recur.

I would propose that a medical officer of the Indian Army be appointed as a "Historian of the Indian Medical Service" in peace and war, and of the British troops who fought side by side with them in the endless Indian wars. Such an officer would be a member of the headquarters staff of the army in India, and would deliver each year a course of instruction on medical war history in various parts of the continent of India.

I am, Sir, yours faithfully,

GEORGE J. H. EVATT, Major-General,
British Army Medical Staff, retired.

Junior United Service Club, Jan. 16th, 1920.

## THE VERMIN REPRESSION SOCIETY.

*To the Editor of* THE LANCET.

SIR,—I note with very great satisfaction that in your issue of Jan. 17th you give prominence to the fact that the Government representative, at the Vermin Repression Society's dinner, pointed out that the Vermin Repression Society was only at the beginning of its work. As the society is just about to be incorporated under special licence of the Board of Trade and it has correspondents in Burmah, Egypt, India, and Australia, and also it has the flourishing section in Bristol, I think the time will not be far distant when its original founder and honorary organiser, Lieutenant Alfred E. Moore, the British Emil Zuschlag, will be caricatured as "The Modern Rat Robespierre"; for it cannot be too well known that it is owing to Lieutenant Moore, who initiated the movement against the rat in 1907, and who has never ceased, in season and out of season, to organise against the rat, that the present success is due, and that he refuses to accept a

[1] The Nervous System and Visceral Diseases, Edin., 1899, p. 98.

British rat law as being the culminating effort of his work, for he confided in me, after the dinner, that he would not be satisfied until the campaign against rats was properly organised on an international basis, as he believes that the whole future of medicine is bound up in verminological research and adequate vermin repression as a bulwark against disease.

I am, Sir, yours faithfully,

H. MILLS,
Captain.

St. Margarets-on-Thames, Jan. 20th, 1920.

## CHESHIRE LOCAL MEDICAL AND PANEL COMMITTEE.

*To the Editor of* THE LANCET.

SIR,—I am directed by my Committee to forward for your information the following resolution, passed unanimously at a full meeting of my Committee at Crewe, on Saturday last:—

(i.) That this Committee expresses its most emphatic disapproval of the remuneration offered by the Government; and regrets that the I.A.C. thought fit to exercise its authorisation to ask for arbitration when the Government's offer proved to be such a low figure as 11*s*. (ii.) This Committee notes with especial regret that the terms of service for which the remuneration is offered are "the proposed Medical Benefit Regulations, 1920, as published in December last" which regulations (*a*) retain the provision by which the Minister may be at one and the same time the accuser or complainant, and the judge or arbitrator (Regulation 57), the accused having no appeal—a provision which in the opinion of this Committee is contrary to the spirit of English law; and (*b*) introduce a new provision [16 (c)], detrimental to the transfer of practices, which greatly diminishes their capital value; and (*c*) impose a new obligation on practitioners [First Schedule, Part 1, 5 (*c*) and Model Allocation Scheme 5 (i.) and (ii.)], requiring them to attend any insured person on the list of another doctor in an accident or sudden emergency if that doctor be not at the moment available, for a fee to be deducted from that doctor's remuneration.

With regard to (*b*) the Committee remarks that at the death of a doctor it is too often found that the goodwill of the practice is the chief and often the only asset which he has to leave to his widow and children, and that by this regulation this asset is, without compensation, greatly diminished, or it may be abolished. With regard to (*c*) a trying and uncertain and entirely new duty is imposed on a panel doctor *in the shape of a legal obligation*. When has it happened, the Committee asks, in the past that doctors have ignored the claims of urgent illness? They have voluntarily dealt with such cases as they occurred on their merits. They resent, however, being *legally obliged* to attend all and any who may demand their services on a plea of urgency; and they note that the reality or otherwise of the urgency is left to the decision of the patient.

I am, Sir, yours faithfully,

LIONEL JAS. PICTON,
Hon. Secretary.

Jan. 21st, 1920.

## CAUSE OF DEATH CERTIFICATION.

*To the Editor of* THE LANCET.

SIR,—In THE LANCET of Jan. 10th, p. 106, it is stated that a doctor is "prohibited by statute from making any charge in respect of a certificate of the cause of death." This is hardly so. He is entitled to make a charge to the relatives or executors. The point is that he cannot be paid *out of public funds*. The doctor can be fined 40*s*. or get seven years if he *refuses* to issue a certificate of the cause, always provided that he can refuse if he has reasonable grounds for refusing. If there be any doubt about a fee, then the doctor can inspect the dead body and charge both fees for visit and inspection.

Those wishing to obtain very full information should obtain the report of the Select Committee, House of Commons, on Death Certification of August and September, 1893. I gave a large amount of information before this Committee. May I suggest that each medical society shall pass a resolution instructing all its members to inspect the body before certifying? It is full time we adopted a uniform system—that is, if doctors can adopt any system of uniformity.

I am, Sir, yours faithfully,

R. R. RENTOUL.

Liverpool, Jan. 19th, 1920.

*** Dr. Rentoul's suggestion is not new, and the advantages and objections are well known.—ED. L.

## DISCONTENT IN THE INDIAN MEDICAL SERVICE.

*To the Editor of* THE LANCET.

SIR,—In your issue of Nov. 29th, 1919, the Secretary for War is reported to have replied to Sir Watson Cheyne in the House of Commons, concerning grievances of temporary R.A.M.C. officers, that the pay of these officers has been raised to Rs.750 to Rs.800 per mensem. As this may easily create an impression that medical officers in India are rolling in wealth, may I point out that Special Reservists are only in receipt of Rs.475 per mensem, plus Rs.69–12 for war bonus, a difference of approximately £20 a month.

I am, Sir, yours faithfully,

SPECIAL RESERVIST.

Jan. 1st, 1920.

## THE JUSTIFIABILITY OF THERAPEUTIC LYING.

*To the Editor of* THE LANCET.

SIR,—The controversy on the justifiability of therapeutic lying raises a subject of the utmost importance. It involves the question whether mere ritual or ceremony is ever justifiable, when it is intended to deceive or to impress. Whether, also, such cures are good or justified when no effort is made by the patient and nothing is given to dethrone his egoism. Whether humbug is ever justified. Until the public knows the difference between functional and organic disease, and how that the one is frequently superimposed upon the other, such "cures" tend to obscure knowledge and to impede the progress of truth, and, moreover, charlatanism and quackery will flourish. The friends and relatives of Dr. Hildred Carlill's patient are probably deceived. As it happens the patient fell into good hands, but he might as easily have fallen into hands less scrupulous and less honourable, with a similar result and a similar obscuring of knowledge.

One pauses, however, when one reads that "He spat on the ground, and made clay of the spittle and anointed his eyes with the clay and said unto him, Go, wash in the pool of Siloam. He went away therefore and washed and came seeing." But in two other accounts, and those earlier and probably more strictly literal, no ceremony is recorded and the blind man was spoken to thus: "Go thy way, thy faith hath made thee whole; and straightway he received his sight." It may be that the cure of functional disease is more the work of the priest than of the physician, but the priest must be one moved by no unworthy arts of gain, and unnecessary ritual is perhaps better avoided. We know that cures are effected by suggestion of many kinds;—"suggestion" in inverted commas, the eloquence of a quack, vibrations, electric sparks, the reputation of a herbalist, Christian Science, a bottle of medicine three times a day, and relics.

It is pathetic with what earnestness a pilgrim to Lourdes will endeavour to persuade one that the cures effected there are genuine. We *know* that they are genuine, but suggestion will not restore a lost limb, or a nerve tract that has been destroyed, nor cause regeneration of renal epithelium, nor give vitamines to protoplasm; and though the first of these is obvious to the layman the others are not, and if he is bewildered and deceived by our profession how will the truth about disease ever get disseminated? If Dr. Carlill explained the whole thing to the relatives perhaps comparatively little harm was done; but what would be the effect if the patient read the article and the letters on his case? There is no alliance between his moral strength and his recovery. What, in any case, will his future be? Will other devils worse than the first come to occupy the empty chamber? If so, it may well be that a millstone would be preferable to the bone disc about his neck. Elizabeth Barrett was left with no empty chamber. Robert Browning more than filled it; and the blind man had his faith. While we might seek to emulate the atmosphere of the old Æsculapian temples for its curative effect, we would not descend to the crude charlatanism of their

ceremonies nor re-introduce the "cure by sympathy" as advocated by Sir Kenelm Digby.

Possibly if the whole world knew what is meant by functional disease and could recognise it, a great deal of, if not all, truly functional disease would tend automatically to disappear.

I am, Sir, yours faithfully,

London, Jan. 19th, 1920. F. READY.

## THE LATE SIR VICTOR HORSLEY.

*To the Editor of* THE LANCET.

SIR,—The memory of this great surgeon-investigator deserves plenty of contemporary comment, as we are reminded by Dr. Giovanni's book, to which you alluded last week, as well as by your review of Mr. Stephen Paget's biography of Horsley. For instance, it will be important for various future students to know that he, the typical Radical, was the complete opposite of his graceful biographer. Would it indeed have improved Horsley's example, as Mr. Paget thinks, for him to have been a public school man? Might it not have hampered his fine initiative during the all too few youthful years of brisk brain? A sometime fellow resident of his has described him to me sitting in the house surgeons' room holding a chloroformed handkerchief to his face and counting his pulse; gradually sinking back in the chair unconscious; coming to again and resuming the record. I for one cannot fancy the public school boy bringing himself to this; the public school boy would have a different notion of public behaviour. However, that common and well-seeming product might find a trifle or two to put in the opposite scale. I remember hearing Horsley speak at a big women's suffragist meeting in Hyde Park. The particular wagon he was on carried the "University platform," and at this, the intellectual hub of the concourse, the weight of advocacy seemed to be sustained by men. However, when it wanted only a few minutes to the ringing of the bell and putting of the resolution, the chairwoman asked him in a superficially careless tone, "Shall I go on a bit now?" A more conventional man, and the modern type of doctor, would have let her; Horsley didn't. The public school might have saved other people's feelings a little, but then even Horsley's stride was not too big to be clogged somewhat by a clerical-authoritarian régime in his impressionable years. For, though wonderfully productive on his plane, he was not the sovereign investigator. He could not "fancy the fabric," could not make big generalisations. His ascent to knowledge was always by way of the staircase, as the French say, although it must be admitted he went up it three steps at a time. He had always more of an eye to the practical, more of the faculty of application of principles, than has your true diviner. In his work, in short, he was limited to Baconian induction, which some eminent contemporaries are always wrongly indicating as the only way of medical investigation.

Where he indeed *may* have lost was by not taking out a university arts course, instead of going straight to hospital, 45 years ago. Even a pass B.A. would have removed his sciolism. Now that is a cheeky word to use in connexion with such a man, and I would not be misunderstood. "All these reveries and studies have need of so much time and thought that it is almost certain a man cannot be a successful doctor, or engineer, or Cabinet Minister, and have a culture good enough to escape the mockery of the ragged art student who comes of an evening sometimes to borrow a half sovereign"—says Mr. Yeats. Remember that to studies and reveries enough Horsley joined brilliant action. If he had had more humanism he would have been less cocksure. A sub-alcoholic combatant officer who had served with him in the East told me that Horsley gave out you couldn't get heat-stroke if you didn't drink. "Then," he added, "he got it himself." Alas, that characteristic and lamentable death robbed us of one who might, possibly, have done giant's work in the slow but sure, post-war revival of truth.

I am, Sir, yours faithfully,

Jan. 20th, 1920. CADUCEUS.

# Medical News.

**ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, ROYAL COLLEGE OF SURGEONS OF EDINBURGH, AND ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—The following are the results of the Triple Qualification Examination:—**

SECOND EXAMINATION.

Gerrit Johannes Lamprecht, Rachel Caplan, Oliver Hugh Dickinson Oliver, Kaja Magdon Ismail, James M'Nie Campbell, Joseph Alfred Henry Sykes, James Maxton M'Innes, Gujar Robert Falcon, Esias Andries Nortje, and James Readdie.

THIRD EXAMINATION.

Pauline Figdor, Gwilym ap Vychan Jones, John Hagard, John Matthew, Duncan Reid Nicol, Arthur Cuthbertson, Cedric Holmes, and Sayed Ghaleb.

FINAL EXAMINATION.

Lizzie Robertson Clark, Joseph Campbell, James Charles Meek, Alexander Strang, Walter Frederick Swanton Webb, Frederick William Thompson, Evert Frederick Birkenstock, Janet Adeline Agnes Sang, Thomas Blaney, Robert Carl Fechter, and Thomas Wyper Stewart.

**Mr. J. B. Joel and Mr. S. B. Joel have made the magnificent gift of £20,000 for the endowment of a chair of Physics in the University of London. The chair will be tenable at the Middlesex Hospital Medical School.**

**THE IMPERIAL WAR MUSEUM.—The exhibition of the nation's war paintings, which was announced to close this week, will be open until Feb. 7th, owing to the sustained public interest in the pictures. (See THE LANCET, Jan. 24th, p. 215.)**

**Monsieur Michailo Gavrilovitch, the new Serbian Minister, has become president of the Serbian Red Cross Society in Great Britain, in succession to Yovan Yovanovitch, who has returned to Serbia.**

**ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, PLAISTOW.—Lady Helen Seymour is organising a grand bazaar to be held at Claridge's Hotel on Thursday, April 15th, in aid of the matron's special fund for building a new home for the nurses. It is earnestly hoped that it will be a great success. An urgent appeal is issued to every doctor who has at some time been attached to the hospital to send a trifle for the hospital stall. However small, it will be gratefully acknowledged by the matron.**

**University College Hospital being somewhat small for the large schemes in contemplation there, the committee have recently acquired a site in the immediate vicinity of the hospital on which to build a nursing home, with a view to liberating the part of the hospital at present occupied by nurses for the purpose of providing additional beds for patients.**

**UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.—The medical and surgical units at University College Hospital Medical School have now been instituted and are in full working order. The director of the medical unit is Dr. T. R. Elliott, C.B.E., D.S.O., F.R.S., physician to the hospital. Dr. J. W. McNee, D.S.O., recently assistant to the Regius professor of medicine and to the professor of pathology at Glasgow, has been appointed first assistant and deputy to the director. Dr. F. M. R. Walshe has been appointed second assistant to the director to control neurological teaching and research, and also to take charge of the department at University College Hospital of electrotherapeutics and massage. The director of the surgical unit is Mr. C. C. Choyce, C.M.G., C.B.E., and he has as his first assistant Mr. E. K. Martin, and as his second assistant Mr. F. J. F. Barrington. The directors of the units are responsible for the general arrangement of systematic teaching on the principles of medicine and surgery in both hospital and school. The instruction of junior students in physical signs and elementary laboratory methods and the systematic demonstrations and lectures for senior students are to be organised by them, although the teaching in these courses is in certain cases given by other members of the staff. Every student is to take duty during his first year for two months' clerking and two months' dressing with the medical and surgical units respectively. These terms of clerking and dressing are intended to follow as far as possible the four months' term of duty with other members of the staff. Thus every student will in due course pass through one or other unit. During his course of two months' duty under the director of the medical unit the student will be attached for clinical clerking to some of the special departments, such as the cardiographic department under Dr. Thomas Lewis, F.R.S. Arrangements have been made at the medical school by which the directors of the units and their assistants have been furnished with ample accommodation and facilities for research work in the Graham Laboratories of Pathology.**

UNDER the auspices of the Fellowship of Medicine lectures and practical work in physics for the Cambridge diploma in radiology will be given at University College Hospital, London, commencing Tuesday, Feb. 3rd, at 5.30 P.M. Applications should be addressed to the hospital.

NO. 20 GENERAL HOSPITAL, B.E.F.—A dinner of the officers attached to this hospital during the campaign in France, at which Major-General Guise Moores, C.B., will preside, will be held in London on March 13th. Any who are desirous of being present are asked to communicate with Mr. H. Drinkwater, at 7, Cavendish-place, London, W.

SCOTTISH POOR-LAW MEDICAL OFFICERS' ASSOCIATION.—The annual meeting of the association is being held to-day (Friday) at the St. Enoch Station Hotel, Glasgow. The report for the year 1919 states that the superannuation for all employees of local authorities has been under consideration. Dr. W. Bryce and Dr. W. L. Muir have been nominated to serve on the consultative council to advise the Scottish Board of Health.

THE FEDERATION OF MEDICAL AND ALLIED SOCIETIES.—At the last meeting of the executive of the federation it was decided to hold a dinner at the Café Royal, Regent-street, London, at 7.30 P.M., on Wednesday, Feb. 25th, when the guest of honour will be Sir Bertrand Dawson, whose elevation to the peerage has recently been announced. Tickets are 35s. inclusive of wines, and some who intend to be present have intimated their intention to bring guests. Saturday, Feb. 14th, is the last day on which it will be possible to receive applications for tickets, which should be made to Dr. N. Howard Mummery, general secretary, at 5, Vere-street, Cavendish-square, London, W. 1.

THE BRITISH DENTAL ASSOCIATION.—The new headquarters of the British Dental Association were opened by Dr. Addison, the Minister of Health, at 23, Russell-square, London, W.C., on Jan. 23rd. Sir George Newman, Chief Medical Officer of the Ministry of Health, was present to represent the University of London, and a distinguished attendance included Sir George Makins, President of the Royal College of Surgeons of England; Sir Humphry Rolleston, President of the Royal Society of Medicine; Surgeon Rear-Admiral Sir R. Hill, Director-General of the Medical Department of the Royal Navy; and Major-General Sir G. Stanistreet, Deputy Director, Army Medical Service. Among those who were unavoidably absent and who sent letters of regret and support were Sir Donald MacAlister, Sir Clifford Allbutt, and Sir John Goodwin.

Mr. Montagu F. Hopson, President of the Association, who presided, said that the accommodation in Hanover-square, having proved too small for the requirements of the Association, the new premises had been adapted at a present cost of £4000, the charge being made out of funds held in reserve for the purpose. A generous donation had been received from the mother branch and other donations from individual members. He hoped that the new home would prove worthy of the work which the Association would be called upon to do in the near future. The Association was founded just after the passing of the Dentist Act of 1878, and had now a membership of 3000—that was to say, three-fifths of those qualified to practise dental surgery. The Association might therefore be considered as truly representative of British dentistry. Dr. Addison, in formally declaring the new headquarters open, said that dentistry had not yet come into its kingdom, and he was glad to see that the Association had been able to find the means necessary to equip itself with better headquarters. He hoped, too, that there would be only one association, for it was the plague of some professions that they had too many. The report of the Dentist Act Committee had indicated what it was necessary to do as a minimum in the interests of public health, but as developments went on it would be found that there would be an insufficient supply of skilled men. The dentistry training was perhaps more expensive than the medical training. It ought to come within the reach of a larger number of people, and he was glad to see that a reduction in the period of training had been recommended. Medical research had shown that the health of the nation's children was being undermined in consequence of defective teeth. In the proposals that would be put before the country by the Government in due course it was essential that everyone should understand that the organisation and trained personnel for an adequate service would take many years to provide. In any proper organisation, too, there should be community of service, and the time was rapidly coming to an end when in respect to health services medical men, dentists, nurses, midwives, and others would be taken separately. The aim should be a coördinated service working in common centres. Mr. Norman G. Bennett proposed a vote of thanks to Dr. Addison, which was seconded by Major W. Guy, of Edinburgh, and carried with acclamation. Mr. J. A. Woods proposed a vote of thanks to the distinguished visitors, which was replied to by Sir George Makins, and the proceedings terminated.

CENTRAL MIDWIVES BOARD.—A meeting of the Central Midwives Board was held at Queen Anne's Gate Buildings, Westminster, on Jan. 22nd, with Sir Francis H. Champneys in the chair.—A letter was considered from the secretary of the County Councils Association asking the opinion of the Board as to the practicability of restricting the liability of local supervising authorities under Section 14 of the Midwives Act, 1918, by the imposition of a time limit or otherwise. The Board directed that the secretary of the County Councils Association be informed that the Board does not see its way to advise what limits should be placed on the liability of local supervising authorities under Section 14 of the Midwives Act, 1918, but thinks that each case must be considered on its merits as to when the emergency ceases.

A special meeting was held on the same date, when two midwives were struck off the roll, the following charges amongst others having been brought forward:—

Being in attendance at a confinement and the patient suffering from serious rupture of the perineum and offensive discharge, the midwife did not explain that the case was one in which the attendance of a registered medical practitioner was required, as provided by Rules E. 20 and 21 (3); she neglected to take and record the pulse and temperature of the patient at each visit, as required by Rule E. 14, and the child having died before the attendance of a registered medical practitioner, the midwife neglected to notify the local supervising authority thereof, as prescribed by Rule E. 22 (1) (b). A child suffering from inflammation of and discharge from the eyes and continuing so to suffer, the midwife did not explain that the case was one in which the attendance of a registered medical practitioner was required, as provided by Rule E. 21 (5); medical aid having been sought for the child, she neglected to notify the local supervising authority thereof, as required by Rule E. 22 (1) (a).

HOSPITAL CONDITIONS IN LEEDS.—The stock-taking in charitable institutions, and especially in hospitals, has this year been followed by a feeling of dismay. The plight of Leeds is really that of all provincial hospitals, as is revealed by correspondents in THE LANCET from Bristol, Birmingham, and other centres. Leeds suffers chiefly from a lack of funds, the deficit on each year's working amounting to about £25,820, whilst the bank overdraft reaches £38,591. This year Mr. Joseph Watson prevented disaster with a magnificent gift of £50,000, but even this is but a temporary help. Further schemes for the raising of the yearly income are afoot. The number of beds at the disposal of the infirmary authorities is 594, but some are occupied by special military cases, and 64 beds are kept for pensioners; this causes a waiting list of several hundred civilian patients, but there are signs that this state of affairs will be remedied in the near future. The aggregation of all kinds of cases at the General Infirmary at Leeds is ideal for students and teachers alike. In provincial cities, where more than one institution exists, much may be said for coöperation and central control. Buying on a large scale can command an easier market; efficient administration can be afforded; staff personnel kept at a higher level; whilst funds and effort in collecting them are not frittered away, thus giving the subscribing public a better assurance that their money is being spent to the highest advantage. In Leeds, where the work-people subscribe to a common hospital fund, much trouble and annoyance associated with the distribution of the moneys thereof would be done away with by centralisation of control.

NORFOLK AND NORWICH HOSPITAL.—The quarterly meeting of the governors of the Norfolk and Norwich Hospital was held on Jan. 10th. The board of management reported that during the past quarter 10 military cases, 172 discharged soldiers, and 666 civilians, a total of 848, had been admitted to the hospital, the number in the corresponding quarter of the previous year having been 750. The average daily number of in-patients was 277, against 304 in the corresponding quarter of 1918; 587 operations had been performed, against 437; 497 new cases were treated in the out-patient department, against 393; and 1771 accidents and casualties had been treated, as against 1231 in 1918. It was also pointed out that whereas in 1913 the total number of in-patients was 2667 and the average number of patients resident daily was 180, in 1918 the total of in-patients was 4242 and the daily average 328, yet the daily cost per in-patient had increased from £4 13s. to £8 13s. 6d. In 1913 the annual subscriptions amounted to £3485, and had only increased in 1918 to £4010. On the other hand, the expenditure had increased from £13,650 to £36,653. These figures were sufficient to show the good work done by the hospital and the urgent need of a great increase in the annual subscriptions. The special appeal fund for the establishment of an orthopædic department and for other extensions had been augmented during the quarter by £1000, and now amounted to over £21,000. There were two interesting contributions made during the quarter, the first being a donation of £100 from the King and the second was a sum of £229, the result of the takings on Dec. 12th last at all the cinema theatres in Norwich, the proprietors of which had generously presented the receipts for that day to the special fund. The board is appealing for a further sum of from £16,000 to £20,000.

# Appointments.

*Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to* THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BURY, J. S., M.D. Lond., has been appointed General Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuit No. 5.

DAVISON, GLEN., M.D., Visiting Pediatric Physician to the Maternity Hospital, Newcastle-upon-Tyne.

GOULDEN, CHARLES, M.D., M.Ch., F.R.C.S., Assistant Ophthalmic Surgeon to the London Hospital, Whitechapel.

MACKENNA, R. W., B.Ch., M.D., Honorary Dermatologist to the Liverpool Royal Infirmary.

Certifying Surgeons under the Factory and Workshop Acts: BARBER, A., M.R.C.S., L.R.C.P. Lond. (Shanklin), SCOTT, C. T., B.C. Camb. (Market Harborough), ST. JOHN, W. St. A., M.R.C.S., L.R.C.P. Lond. (Derby).

# Vacancies.

*For further information refer to the advertisement columns.*

*Barnsley, Beckett Hospital.*—H.S. £200.
*Bedford County Hospital.*—H.S. and H.P. £175 and £150 respectively.
*Belgrave Hospital for Children, Clapham-road, S.W.*—Asst. P.
*Bethlem Royal Hospital, Lambeth-road, S.E.*—Sen. Res. Asst. P. £600.
*Birmingham City Education Committee.*—Asst. Sch. M.O. £450.
*Bristol, City and County of.*—Asst. Tuberc. O. £450.
*Bristol General Hospital.*—Senr. R.M.O. £300.
*British Guiana.*—Asst. M.O. £400.
*Camberwell Provident Dispensary, Camberwell Green, S.E.*—Four M.O.'s.
*Carlisle, Cumberland County Council.*—Asst. County M.O. £500.
*Carlisle, Cumberland and Westmorland Mental Hospital, Garlands.*—Jun. Asst. M.O. £350.
*Central London Throat, Nose and Ear Hospital, Gray's Inn-road, W.C.*—Hon. Ophthal. S. and Registrars.
*Chartham, near Canterbury, Kent County Mental Hospital.*—Jun. Asst. Third M.O. £300.
*Chester Royal Infirmary.*—H.P. £150.
*Chichester, West Sussex County Mental Hospital.*—Sec. Asst. M.O. £300.
*Croydon General Hospital.*—Vacancy on Hon. Med. Staff.
*Darlington General Hospital.*—H.S. £250.
*Dorchester, Dorset County Council Education Committee.*—School Dentists. £400.
*Dover Borough.*—M.O.H. £800.
*Downpatrick, Down District Asylum.*—Two Asst. M.O.'s. £300.
*Dreadnought Hospital, Greenwich.*—H.S. £50.
*Dublin, Dr. Steevens' Hospital.*—Gynæcologist.
*Dudley, Guest Hospital and Eye Infirmary.*—Vacancy on Hon. Surg. Staff. Also two Hon. P.'s.
*Durham County Council.*—Female Asst. Welfare M.O. £500.
*East London Hospital for Children and Dispensary for Women, Shadwell, E.*—Two Asst. P.'s.
*East Suffolk County Education Committee.*—Dentist £400.
*Edmonton Infirmary, London, N.*—Asst. M.O. £1 a day.
*Falkland Islands.*—Dent. S. £500.
*Gilbert and Ellice Islands Colony and British Solomon Islands Protectorate.*—Sen. M.O.'s. £600 each.
*Glamorgan County Council.*—Ven. Dis. M.O. £750.
*Gloucester City Education Committee.*—School Dent. £400.
*Gold Coast and Sierra Leone.*—Dent. S. £500.
*Govan District Asylum, Hawkhead, Cardonald, Glasgow.*—Jun. Asst. M.O. £300.
*Great Northern Central Hospital, Holloway, London, N.*—H.P. £150. Also S. to Out-patients.
*Halifax Royal Infirmary.*—H.S. £200.
*Hospital for Sick Children, Great Ormond-street, London, W.C.*—P. to Out-patients.
*Ilford Urban District Council.*—Asst. M.O.H. £650.
*King Edward's Memorial Hospital, Ealing.*—Res. M.O. £150.
*Kingston-upon-Hull City and County.*—Res. M.O. £500.
*Leasowe, Cheshire, Hospital for Children.*—Junr. M.O. £200.
*Leeds General Infirmary.*—M.O.'s for Radiol. Dept. and Electro- and Radio-Therap. Dept. £100 each.
*Liverpool Infirmary for Children.*—H.P. £90.
*London County Mental Hospital Service.*—Third Asst. M.O. £425.
*London Hospital Medical College, Mile End, E.*—Lecturer on Neuroses and Psycho-Neuroses.
*Manchester Children's Hospital, Pendlebury, near Manchester.*—Res. M.O. £150. Asst. S. £50.
*Margate, Royal Sea-Bathing Hospital for Surgical Tuberculosis.*—Res. S. £200.
*Middlesex Hospital, W.*—Asst. P.
*National Dental Hospital, Great Portland-street, W.*—Hon. Anæs.
*Newcastle-upon-Tyne and Northumberland Sanatorium for Consumptives, Barrasford, North Tyne.*—Med. Supt. £500.
*Newcastle-upon-Tyne, Hospital for Sick Children.*—Junior Res. M.O. £200.
*New Zealand, Auckland Hospital.*—Bact. and Path. £900.
*Nottingham Children's Hospital.*—Female Res. H.S. £200.
*Nottingham City Asylum, Mapperley Hill.*—Sec. Asst. M.O. £400.
*Nottingham City.*—Asst. M.O.H. £800.
*Nottingham City Education Committee.*—Jun. Asst. Sch. M.O. £500.
*Nottingham General Hospital.*—H.S. £150.
*Oldham County Borough.*—Asst. M.O. £400.
*Oxford, Radcliffe Infirmary and County Hospital.*—H.P. Cas. H.S. £200.
*Paddington Green Children's Hospital, London, W.*—S. to Eye Dept., P. to Skin Dept., and P. to Out-patients.
*Plymouth, South Devon and East Cornwall Hospital.*—H.P. £140. H.S. £200.
*Prince of Wales's General Hospital, Tottenham, N.*—Hon. Asst. P., Hon. P. to Children's Dept., and Clin. Assts.
*Queen's Hospital for Children, Hackney-road, Bethnal Green, E.*—Clin. Assts.
*Queen Mary's Hospital for the East-End, Stratford, E.*—Hon. S., Hon. Asst. P.'s, Res. M.O.
*Rawalpindi District, N. India, Travelling Caravan Dispensary.*—Medical Woman. Rs. 500–600 p.m.
*Reading, Royal Berkshire Hospital.*—Second H.S. £200.
*Reeth Union and Rural District Council, Yorkshire.*—M.O.H. £170.
*Roxburgh County.*—Asst. Tuberc. O. £450.
*Royal Free Hospital, Gray's Inn-road, W.C.*—Female Res. Obstet. Asst. and Res. Obstet. H.S. £150 and £50 respectively.
*Royal Waterloo Hospital for Children and Women, S.E.*—Hon. Ophth. S. and Hon. S. to Out-patients.
*St. Pancras Borough Council.*—Asst. M.O. £450.
*Sheffield Royal Hospital.*—Asst. Cas. O. £120.
*Shrewsbury Borough.*—M.O.H. £650.
*Straits Settlements and Federated Malay States.*—M.O.'s.
*University of London, South Kensington.*—Examiners.
*Victoria Hospital for Children, Tite-street, Chelsea, S.W.*—S. to Out-patients.
*Wakefield, Clayton Hospital.*—Jun. H.S. £150.
*Whittingham, Preston, Lancs, County Asylum.*—Asst. M.O. £300.
*Windsor, King Edward VII. Hospital.*—H.S. £200.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Sligo, Bovey Tracey, Woburn Sands, Couper Angus, and at Great Wakering.

# Births, Marriages, and Deaths.

## BIRTHS.

ATTWOOD.—On Jan. 22nd, at Glenfern, The Avenue, Southampton, the wife of Dr. H. C. Attwood, of a daughter.

BURRIDGE.—On Jan. 24th, at Swanage, the wife of Captain W. Burridge, R.A.M.C.—a son.

O'FARRELL.—On Jan. 6th, at Whalley, Lancs, the wife of Major W. R. O'Farrell, R.A.M.C., of a daughter.

PALMER.—On Jan. 25th, at Whitfield, Reigate, the wife of A. C. Palmer, O.B.E., F.R.C.S., of a son.

SMALLEY.—On Dec. 23rd, 1919, at Rawal Pindi, India, the wife of Major J. Smalley, I.M.S., of a daughter.

WALL.—On Jan. 24th, at Cavendish-place, W., the wife of Dr. Cecil Wall, of a daughter.

## MARRIAGES.

ELVERY—BRADFORD.—On Jan. 22nd, in South Kensington, Captain Elvery, D.S.O., M.C., R.A.M.C., to Dorothy, youngest daughter of the late J. Bradford and Mrs. Bradford, of Penn House, Yeovil, Somerset.

GOMPERTZ—WHITFIELD.—On Jan. 22nd, at St. Peter's, Berkhamsted, Richard Henry Cyril, M.B., B.S. Lond., only son of Lieutenant-Colonel B. Gompertz, Indian Army, to Marjorie Hester, eldest daughter of E. A. Whitfield, of Stanmore, Herts.

PAM—PRIOR.—On Jan. 26th, at Capetown, Lieut.-Col. Edgar Pam, O.B.E., R.E., of Kimpton, Welwyn, Herts, and Johannesburg, Transvaal, to Miss Mary Millicent Prior, M.B., B.S. Lond., of 3, Dollis Hill-lane, Neasden, N.W. (By cable.)

SHAW—DRAPER.—On Jan. 20th, at St. George's Parish Church, Edinburgh, Major J. J. M. Shaw, M.C., R.A.M.C. (S.R.), to Mina, daughter of the late David Draper, Falkirk, and Mrs. Wood, of Wallhouse, Linlithgowshire.

## DEATHS.

CLARE.—On Jan. 24th, at Bournemouth, Henry Lewis Clare, M.D., late Surgeon-General of Trinidad and Tobago, in his 63rd year.

CLEMENTS.—On Jan. 16th, at Bellevue-road, Southborne, Bournemouth, Lieutenant-Colonel W. G. Clements, R.A.M.C., Military Hospital, Hilsea, aged 63 years.

DYER.—On Jan. 24th, at the London Fever Hospital, Islington, Francis Norman Victor Dyer, M.A., M.B., B.Ch. Camb., M.R.C.S., and L.R.C.P. Lond., assistant medical officer, the dearly beloved only child of Mr. and Mrs. Dyer, and grandson of the late Rev. Charles Dyer, in his 26th year.

LYSTER.—On Jan. 26th, at Bickenhall Mansions, W., Cecil R. C. Lyster, M.R.C.S., of Abbey Wood, Kent, aged 60.

O'CONNOR.—On Jan. 25th, at Waldegrave-park, Strawberry Hill, Twickenham, Colonel Arthur Patrick O'Connor, C.B., A.M.S., F.R.C.S.I., aged 63 years.

*N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

DEATH OF DR. F. N. V. DYER.—Francis Norman Victor Dyer, who died on Jan. 24th from scarlet fever, was educated at Marlborough and Clare College, Cambridge, taking the Conjoint qualification in January, 1918, and the M.A., M.B., B.Ch. of his University in October last. When war broke out he served as a dresser in the 1st Eastern Hospital, Cambridge, he was six months a surgeon-probationer on H.M.S. *Buttercup*, then resident anæsthetist and casualty officer at St. Thomas's Hospital, afterwards surgeon R.N. on H.M.S. *Birkenhead* until the surrender of the German Fleet, when he transferred to the R.A.F., and was a member of the Invaliding Medical Board at Hampstead. Demobilised at the end of October, he was assistant medical officer at the London Fever Hospital, where he died.

# Medical Diary.

## SOCIETIES.

**ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.**

*MEETINGS OF SECTIONS.*

**Tuesday, Feb. 3rd.**

SURGERY: SUBSECTION OF ORTHOPÆDICS (Hon. Secretaries—A. S. Blundell Bankart, R. C. Elmslie): at 5 P.M.
*Cases* will be shown by:
Mr. Aitken, Mr. Rowley Bristow, and others.
*Short Paper:*
Mr. Max Page: On the Use of Pneumatic Pads.

PATHOLOGY (Hon. Secretaries—J. A. Murray, Cecil Price-Jones); at 8.30 P.M.
Dr. Teale: Phagocytosis *in vitro*.

**Wednesday, Feb. 4th.**

SURGERY (Hon. Secretaries—Cyril A. R. Nitch, Herbert J. Paterson): at 5.30 P.M.
*Papers:*
Mr. Garnett Wright: Congenital Diverticulum of the Colon.
Mr. R. H. Anglin Whitelocke: Appendicectomy, by a New Route.

OPHTHALMOLOGY (Hon. Secretaries—Malcolm Hepburn, W. H. McMullen): at 8.30 P.M.
*Case* (at 8 P.M.):
Mr. G. Winfield Roll: New-formed Vessels on the Iris.
*Paper:*
Dr. S. H. Browning: The Cure of Gonorrhœal Iritis.

**Thursday, Feb. 5th.**

OBSTETRICS AND GYNÆCOLOGY (Hon. Secretaries—J. S. Fairbairn, Herbert Williamson): at 8 P.M.
*Papers:*
Dr. Cuthbert Lockyer will read an abstract of a paper by Dr. Goodall on "The Origin of Tumours of the Ovary."
Mr. Gordon Ley: A Statistical Report of Carcinoma of the Ovary as met with in the Pathological Institute of the London Hospital between the Years 1907-1919 inclusive, showing the Relative Frequency of Primary and Secondary Ovarian Carcinoma.

**Friday, Feb. 6th.**

LARYNGOLOGY (Hon. Secretaries—Irwin Moore, Charles W. Hope): at 4.45 P.M.
*Cases and Specimens* (4 P.M.) will be shown by:
Mr. Colledge, Mr. Charles Cuthbert, Mr. G. W. Dawson, Dr. Donelan, Mr. C. W. M. Hope, Mr. Buckland Jones, Mr. Horace Law, Mr. T. B. Layton, Sir William Milligan, Mr. Lawson Whale, Dr. Andrew Wylie.

ANÆSTHETICS AND LARYNGOLOGY (JOINT MEETING) (Hon. Secretaries—R. E. Apperly, Ashley S. Daly, Irwin Moore, Charles W. Hope): at 8.30 P.M.
*Discussion:*
On "Anæsthesia in Throat and Nose Operations," to be opened by Dr. F. S. Rood.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.
MONDAY, Feb. 2nd.—9 P.M., Lettsomian Lecture:—Dr. H. R. Spencer: Tumours Complicating Pregnancy, Labour, and the Puerperium.

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.
MONDAY, Feb. 2nd.—5 P.M., Hunterian Lecture:—Sir Berkeley Moynihan, K.C.M.G., C.B.: The Late Surgery of Gunshot Wounds of the Chest.
FRIDAY.—5 P.M., Hunterian Lecture:—Prof. V. Z. Cope: The Surgical Aspect of Dysentery.

UNIVERSITY OF LONDON.
Advanced Lectures in Physiology to Students of the University and others interested in the subject.
A Course of Eight Lectures on Physiologically Balanced Solutions will be given by Dr. W. L. Symes in the Physiological Laboratory of the University, South Kensington, S.W.
TUESDAY, Feb. 3rd.—5 P.M., Lecture II.
A Course of Eight Lectures on the Reaction of the Blood and Acidosis will be given by Dr. J. W. Trevan, at St. Bartholomew's Hospital, West Smithfield, E.C.
WEDNESDAY, Feb. 4th.—4.30 P.M., Lecture II.
A Course of Eight Lectures on the Regulation of Respiration will be given by Dr. M. S. Pembrey and Mr. J. H. Ryffel at Guy's Hospital, Borough, S.E.
THURSDAY, Feb. 5th.—4.30 P.M., Lecture V.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), Mile End, E.
A Course of Instruction on the Diseases of Children, open to Post-Graduates and to Students of the Hospital. (The lectures will be illustrated by lantern slides.)
MONDAY, Feb. 2nd.—9.15 A.M., Lecture IV.:—Dr. Thompson: Organic and Functional Nervous Diseases, Meningitis and Mental Deficiency. (At the Anatomical Theatre.)
WEDNESDAY.—10 A.M., Clinical Demonstration:—Dr. Miller. (At the Children's Out-patient Department.)
SATURDAY.—10.15 A.M., Lecture V., Dr. Hutchison: General Diseases. (At the Anatomical Theatre.)

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON).
A Post-Graduate Course of Lectures on Syphilis will be given by various members of the staff of King's College Hospital during the ensuing year.
FRIDAY, Feb. 6th.—9.15 P.M., Lecture II.:—Dr. W. d'Este Emery: Pathology and Pathological Diagnosis; Methods of Collecting Material for Spirochætes and for Wassermann Reaction; Interpretation of Results.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART POST-GRADUATE COURSE, Westmoreland-street, W.
MONDAY, Feb. 2nd.—11 A.M., Out-patients: Dr. Goodall. 2 P.M., In-patients: Dr. Moon.
TUESDAY.—2 P.M., Out-patients: Dr. R. Wells. 3 P.M., In-patients: Dr. Gibbes.
WEDNESDAY.—2 P.M., Out-patients: Dr. Moon. 5.30 P.M., Lecture:—Dr. Price: The Pulse in Diagnosis (2).
THURSDAY.—10 A.M., In-patients: Dr. Hamill: 2 P.M., Out-patients: Dr. Price.
FRIDAY.—2 P.M., Out-patients: Dr. Gibbes. 2.30 P.M., In-patients: Dr. Wells.
SATURDAY.—10.30 A.M., In-patients: Dr. Hamill.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Hall of the Institute, 37, Russell-square, W.C.
Special Course of Lectures and Demonstrations on Tuberculosis for Medical Men and Women qualifying to become Tuberculosis Officers, General Practitioners, and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries, &c.
THURSDAY, Feb. 5th.—5 P.M., Lecture IV.:—Dr. E. C. Morland: Climate in Tuberculosis.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
TUESDAY, Feb. 3rd.—2 P.M., Demonstration I.:—Mr. H. W. Carson: Hernia, with illustrative cases. 4.30 P.M., Lecture:—Dr. F. G. Crookshank: Types of Respiratory Disease in Childhood.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.
MEDICAL SCHOOL.
MONDAY, Feb. 2nd.—2-3.30 P.M., Out-patient Clinic: Dr. Collier. 3.30 P.M., Dr. Aldren Turner: Paraplegia. I.
TUESDAY, Feb. 3rd.—2-3.30 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Ward Cases: Dr. James Taylor.
WEDNESDAY, Feb. 4th.—2 P.M., Mr. Armour: Surgical Treatment of Cerebral Tumours. I. 3.30 P.M., Dr. Greenfield: Pathological Demonstration.
THURSDAY, Feb. 5th.—2-3.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Dr. Saunders: Syringomyelia.
FRIDAY, Feb. 6th.—2-3.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Ward Cases: Dr. Hinds Howell.
SATURDAY, Feb. 7th.—9 A.M., Surgical Operations.
Fee for Post-Graduate Course £7 7s. C. M. HINDS HOWELL, Dean.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.
SATURDAY, Jan. 31st.—10 A.M., Mr. Banks Davis: Operations of the Throat, Nose and Ear.
MONDAY, Feb. 2nd.—5 P.M., Mr. MacDonald: Bacterial Infections of the Urinary Tract.
TUESDAY.—2 P.M., Dr. Fernet: Skin Department.
WEDNESDAY.—5 P.M., Dr. Owen: Electro-cardiographic Methods.
THURSDAY.—10.30 A.M., Dr. Simson: Gynæcological Demonstration.
FRIDAY.—5 P.M., Special Lecture:—Dr. R. Hutchison: Functional Dyspepsia.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.
WEDNESDAY, Feb. 4th.—4.30 P.M., Lecture:—Dr. Punch: Morbid Anatomy of Pulmonary Tuberculosis.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.
THURSDAY, Feb. 5th.—3 P.M., Prof. A. E. Conrady: Recent Progress in Applied Optics.

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST-GRADUATE DEMONSTRATIONS, at the Sheffield Royal Hospital.
MONDAY, Feb. 2nd.—3.30 P.M., Dr. Nutt: X Ray Examination of Bones and Joints.
TUESDAY.—4 P.M., Dr. Hay: Ocular Sequelæ of General Diseases.
WEDNESDAY.—3.30 P.M., Dr. Wilkinson: Nasal Obstructions.
THURSDAY.—3.30 P.M., Dr. Skinner: Inflammations of Skin.
FRIDAY.—4 P.M., Dr. Hay: Diseases of Eyelids.

UNIVERSITY OF BIRMINGHAM—FACULTY OF MEDICINE, in the Anatomical Theatre, Edmund-street, Birmingham.
Post-Graduate Course of Lectures on Venereal Disease:—
WEDNESDAY, Feb. 4th.—4.15 P.M., Mr. B. Ward: Gonorrhœa in the Male. (Lecture III.)

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.
TUESDAY, Feb. 3rd.—4.30 P.M., Lecture:—Dr. F. E. Tylecote: Some Features of Recent Epidemics of Pneumonia.

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS, at the two Hospitals alternately.
THURSDAY, Feb. 5th.—4.30 P.M., Lecture:—Dr. Heywood: Some Functional Nervous Disorders, with Special Reference to Organotherapy. (At Salford Royal Hospital.)

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BALNEOLOGY: POST-GRADUATE COURSE IN CARLSBAD.—**The municipality has fixed for the second half of September the second international post-graduate course of balneology and balneotherapy, which should have taken place in 1914. Prominent university teachers, at home and abroad, have undertaken to give lectures for this course. Inquiries are to be directed to the Manager, Dr. Edgar Ganz, Carlsbad.**

## BOOKS, ETC., RECEIVED.

ALCAN, FÉLIX, Paris.
La Cure de Bouchardat et le Traitément du Diabète sucré. Par F. Rathery, professeur agrégé à la Faculté de Médecine de Paris. Pp. 276. Fr.8.

ALLAN, PHILIP, AND CO., London.
G.H.Q. (Montreuil-sur-Mer). By "G. S. O." Pp. 306. 20s.

BAILLIÈRE, J. B., ET FILS, Paris.
Le Mal des Aviateurs ses Causes et ses Remèdes. Par les Dr. R. Cruchet et R. Moulinier. Pp. 96. Fr.3.

BALE, JOHN, SONS, AND DANIELSSON, London.
Musings of an Idle Man. By R. H. Firth, K.B.E., C.B., Colonel, late a Director of Medical Services with the British Army in France. Pp. 360. 7s. 6d.

COMBRIDGES, 56, Church-road, Hove.
Sussex in Bygone Days. Reminiscences of Nathaniel Paine Blaker, M.R.C.S. With Foreword by Habberton Lulham and an Introductory Letter by Sir Arthur Newsholme, K.C.B. Pp. 200. 5s.

CROSBY LOCKWOOD AND SON, London.
Mechanical Dentistry. By C. Hunter. 7th ed., revised. Pp. 266. 5s.
Applied Chemistry. A Practical Handbook for Students of Household Science and Public Health. By C. Kenneth Tinkler, D.Sc., F.I.C.; and Helen Masters, B.Sc., and King's College Diploma in Household Science. Vol. I. Pp. 292. 12s. 6d.

DORNAN, W. J., Philadelphia.
Transactions of the American Surgical Association. Vol. XXXVI. Edited by J. F. Binnie, M.D. Pp. 602.

GREEN, W., AND SON, Edinburgh and London.
Encyclopædia Medica. 2nd ed. Under the general editorship of J. W. Ballantyne, M.D. Vol. VI., Heat Fever to Intertrigo. Pp. 658.

HEINEMANN, WILLIAM, London.
X Ray Observations for Foreign Bodies and their Localisation. By Capt. H. C. Gage, Consulting Radiographer to the American Red Cross Hospital, Paris. Pp. 87. 6s.

HOEBER, PAUL B., New York.
The Proceedings of the Charaka Club. Vol. V. Pp. 100. $4.00.

HODDER AND STOUGHTON, London, New York, and Toronto.
A History of the Scottish Women's Hospitals. Edited by Eva Shaw McLaren. Pp. 408. 7s. 6d.

JARROLDS, PUBLISHERS, LTD., London.
Health in the Home. By A. K. Gordon, M.B., B.C. Cantab. Pp. 245. 5s.

LEA AND FEBIGER, Philadelphia and New York.
Diseases of the Nervous System. A Text-Book of Neurology and Psychiatry. By S. E. Jelliffe, M.D., and W. A. White, M.D. 3rd ed. Pp. 1018. $8.00.

MASSON ET CIE, Paris.
Traité d'Endoscopie Recto-colique Rectoscopie Sigmoïdoscopie. Par le Dr. R. Bensaude. Pp. 48 and 15 plates. Fr.28.

MILFORD, HUMPHREY, London.
Nutrition of the Fœtus. By J. M. Slemons. Pp. 50.

MURRAY, JOHN, London.
Psychologies. By Sir Ronald Ross. Pp. 69. 2s. 6d.

UNIVERSITY PRESS, Cambridge, and CLAY, C. F., London.
The Foundations of Music. By H. J. Watt, D.Phil. Pp. 240. 18s.

## Communications, Letters, &c., to the Editor have been received from—

**A.**—Mr. R. J. Albery, Lond.
**B.**—Dr. A. D. Bigland, Liverpool; Mr. H. Barwell, Lond.; Sir John Byers, Belfast; Brompton Hospital for Consumption, Lond., Dean of; Dr. C. R. Box, Lond.; Mrs. M. A. C. Brereton, Lond.; Mr. H. W. Bayly, Lond.; Mr. H. Brown, Birmingham.
**C.**—Dr. H. P. Cholmeley, Forest Row; *The Common Cause*, Lond., Editor of; Dr. J. Craig-Macgown, Knowle; Mr. E. C. Cline, Lond.; Mr. G. Chubb, Lond.; Miss G. Cowlin, Lond.
**E.**—East Sussex County Mental Hospital, Hellingly.
**F.**—Dr. F. Fergus, Glasgow; Major R. M. Fenn, R.A.M.C.; Mr. C. H. Fevez, Lond.
**G.**—Mr. G. H. C. St. G. Griffiths, Clifton.
**H.**—Major E. V. Hemelryk, Liverpool; Dr. G. W. Hill, Lond.; Dr. E. Hagenbach, Basel; Mr. H. T. Hicks, Derby; Dr. B. Hughes, Bradford.
**I.**—Insurance Committee for the County of London; Incorporated Institute of Hygiene, Lond.
**K.**—Mr. G. L. Keynes, Lond.; King Edward's Hospital Fund for London, Sec of.
**L.**—*Law Times*, Lond., Editor of; Messrs. Lawson and Co., Bristol.
**M.**—Mr. M. F. Moloney, Dungarvan; Ministry of Health, Lond.; Dr. C. F. Marshall, Lond.; Capt. R. W. H. Miller, R.A.M.C.(S.R.), Karachi; Medical Research Committee, Lond.; Dr. J. W. S. Macfie, Accra; Medical Women's Federation, Lond.; Dr. H. A. Macewen, Lond.
**O.**—Col. M. D. O'Connell, Leeds.
**P.**—Dr L. J. Picton, Holmes Chapel; Major W. L. Potter, A.A.M.C., Melbourne; Sir D'Arcy Power, K.B.E., Lond.
**R.**—Prof. G. M. Robertson, Edinburgh; Royal Society, Lond.; Research Defence Society, Lond.; Royal Colonial Institute, Lond.; Royal College of Surgeons of England.
**S.**—Dr. R. V. Solly, Exeter; Dr. J. S. B. Stopford, Manchester; St. Mary's Hospital for Women and Children, Lond., Matron of; Scottish Poor-law Medical Officers Association, Glasgow; Dr. J. O. Symes, Clifton; Dr. W. D. D. Small, Edinburgh; Mr. J. Sherren, Lond.; Mr. B. Sinclair, Edinburgh.
**T.**—Dr. A. H. Thompson, Lond.; Dr. J. Taylor, Lond.
**V.**—Village Centre Council, Lond., Sec. of.
**W.**—Dr. R. T. Williamson, Lond.; West London Hospital Post-Graduate College; World Trade Club, San Francisco; *Welfare Work*, Lond.; Miss M. A. Willis, Lond.

**Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, W.C. 2.**

# Notes, Short Comments, and Answers to Correspondents.

## AMUSEMENTS AND THEIR EFFECTS.

BY HERBERT CARSON, F.R.C.S. ENG.

IN the course of a lecture delivered at the Institute of Hygiene on Jan. 21st, Mr. Herbert Carson said that amusement was necessary for civilised people as it had a definite effect on health and the recuperative powers. There was a definite ratio, too, between efficiency and fatigue, so that a shorter working day might result in greater output, better work, and fewer accidents. But the consequent increase of leisure made it necessary that the workers should be taught how to spend it, and the true interests of the community demanded that the workers should be instructed in the value of leisure. Marking the difference between urban and rural populations, he said that the inhabitants of rural districts did not favour field sports, probably because their feet were too often on the turf, and the absence of amusements resulted in desultory discussions and ill-natured gossip at the village inn. There was great need for the organisation of the village centres providing clubs, reading rooms, lending libraries, discussion circles, and social games—free from the domination of the Church. In the towns a large army of people was employed in promoting amusements for others and enormous sums were spent. The entertainment tax brought in last year over £7,000,000, which meant that, in taxed amusements alone, £50,000,000 was spent, or about one-fortieth of the whole national income. Professional sport was now at the height of its vogue, and the first round of the Football Association Cup had drawn £36,000 from 526,000 spectators at 28 matches—or sufficient money to maintain a hospital of 200 beds for a whole year and confer lasting benefit on 3000 in-patients and 50,000 out-patients. Active amusements provided the ideal way of spending leisure. Economic changes due to the war had caused a decline in the outdoor sports of the wealthy, such as polo and hunting, and even golf was becoming an expensive game. Cricket and football remained as the recreations of the many; and, now that the danger of critical shortage of food was past, he considered that the acreage in open spaces which had been diverted to allotments should be returned to its original use.

*Strenuous Week-ends.*

As a medical man, he thought it necessary to issue a gentle warning against the strenuous week-end. Many hard-driven business men rushed off at Saturday midday for an orgy of exercise. They played golf or tennis with great vigour throughout the week-end, and "slept like a top." But it was really the sleep of bodily exhaustion which, during what should have been a period of rest, they had added to the mental strain of the week's business; and with the shady side of 40 this would tell. The craze for dancing might appear to be going too far, and the atmosphere of the ballroom was certainly not perfect hygienically. But he considered that it was productive of much useful development, and that any tendency to abuse would adjust itself. Night clubs and bridge clubs were becoming a serious scandal, and were the best proof that we do not know what to do with our leisure.

*Educational Possibilities of the Cinema.*

Concerning the cinema, Mr. Carson said that it made a great appeal by its cheapness, and, although much trashy stuff was presented, it succeeded in bringing amusement to millions who had not previously been catered for. Cinema halls were not hygienically commendable, as they excluded light and air and did not permit free ventilation, and there was danger of infection. The cinema had great educational possibilities, as it was easier to teach through the eye than through the ear, but he did not consider that mixed educational and entertainment programmes would prove popular. The theatres had had a great boom, and it did not seem to matter much what quality of entertainment was provided. Revue followed revue with similar music and the same jokes; but better things came from time to time, when a Moscovitch interpreted Shylock in a way that would have delighted Shakespeare, and the character of Abraham Lincoln, in Mr. Drinkwater's play, was delineated in a lovable manner. But audiences were curiously uncritical, and solaced themselves with chocolates as an antidote to depressing entertainments.

*Recreation for Women and Children.*

The population at large, and especially the children, were being deprived of opportunities for recreation by allotments which probably added little to food supplies and provided

exercise for only a very few. The question of amusements for children was really the most important aspect of the whole subject, and the value of play centres for elementary school children and the effect of organised games at secondary schools are the outstanding points of interest. These may have the most important bearing on the health of future generations. A great advance was taking place in active recreation for women. The games mistress and director of physical education was now an important member of the staff at all schools, and the girl of to-day, with her well-developed body and fearless outlook on life, compared most favourably with her Victorian predecessors. The social welfare movement among working women instilled in them the general principles of hygiene, improved their health, and made their work a pleasure to them. Little had yet been done for the working man's wife. She had increased leisure now that children could be fed at the schools and entertained at the play centres, but little recreation had been provided for her.

*The Public House as the Poor Man's Club.*

It was still the public-house that gave the poor man the chance of meeting his fellows. Although unsavoury, it was the poor man's club, and was often cleaner, warmer, and more jolly than his own home. The existing public-house was a disgrace to our civilisation, and would probably not be allowed to continue in any country but this. The many efforts made to improve it were strongly opposed by temperance advocates, who feared that a decent type of public-house would attract more people, and by the trade, which feared that customers would stay too long with too little outlay of money.

## THE PURSUIT OF THE LOUSE.

UNDER the auspices of the London County Council a lecture to teachers and others was given on Jan. 26th at the South Western Polytechnic, Chelsea, by Mr. A. Bacot, entomologist to the Lister Institute of Preventive Medicine, on Lice-borne Diseases and their Treatment. Mr. Bacot, whose lecture was illustrated with lantern pictures and supplemented by a microscopic demonstration, described the three kinds of lice which breed upon man. Two of them, the head and the body louse, were so closely related that it was doubtful if they could rank as species, while the third, the crab louse, was not so widely spread, as its conditions of existence were more limited. The well-recognised association between dirt and lice was due to the fact that the conditions which led to neglect of the body and the clothes were favourable to the spread of the insects, but dirt in itself was not a necessary condition of their propagation. Poverty led to lousiness; not only material poverty, but also that of intellect and physique. Old and infirm people could not always keep their body and clothes free from the pests, and in the past the mental attitude which associated dirt and holiness encouraged lousiness. In the case of the modern tramp it was often the mental outlook that led to his manner of life. The conditions which prevailed in the trenches were due to the fact that the results of crowding men together were not recognised early enough. In civil life the frequent changing of clothes brought about an environment in which, although the louse might live, it could not breed. The louse hatched out of the egg in a state very similar to that of its parent, and, after moulting three times, became an adult insect in about 12 days. The temperature necessary for successful breeding was between 75° and 90° F. The mature life of the louse infesting body and head might extend to 35 or 45 days, the number of eggs laid during that period being about 300. The pubic louse, on the other hand, laid only about 50. The body louse and her daughters together might lay about 4000 eggs during the mother's lifetime, and after her death the daughters would lay up to 12,000 eggs during the remainder of their lives. The louse depended for its existence on the blood of its host, and removed from the body of the host the insects did not live long. The effects of bites apart from disease differed over wide limits among different individuals, one man showing practically no effects and another a marked effusion of blood over the surface of a whole limb, or in other cases the formation of watery pustules.

*Lice-borne Disease.*

Of the three fevers conveyed by lice (typhus, trench fever, and relapsing fever), typhus was the most serious, and had always been associated with war and famine in Europe. Lice did not transmit a disease unless they had first bitten a patient suffering therefrom, but in the case of typhus fever it was suspected that the female might pass on the disease to her eggs. Referring to the ravages of typhus in Europe, Mr. Bacot said that what this country must really depend upon as a safeguard was such a high standard of health and cleanliness that people did not become lousy. If such conditions were maintained we should certainly get no general epidemic, even though one should occur as near as France. The danger arose when people were so poor that they were afraid of having their clothes washed for fear of injuring them. Discussing the methods of destroying lice, the lecturer said that in the case of clothes dry heat was best, and it could be done in an ordinary oven with a temperature of 52° C. or 124° F. Moist heat was also effective, but it must be applied with judgment otherwise the results were not satisfactory. For application to the body various oils could be used, such as sassafras mixed with paraffin or kerosine, and he had found light wood oil[1] most effective. The essential thing was to have penetrative power combined with prevention of evaporation. This was attained, for example, by the admixture of vaseline and kerosine. Objectionable smells from the oils could be disguised with camphor. Nothing was known which would dissolve the cement which fixed the eggs to the hair, but it could be so modified with acids as to loosen it and make it possible for the eggs to be drawn off with a comb.

## THE ÆTIOLOGY OF CARCINOMA OF THE BREAST.

A CORRESPONDENT has recently suggested as a factor in the ætiology of carcinoma of the breast the perverted action of ovarian hormones. He draws attention to the close physiological connexion between the mammæ and the genitalia, and suggests that at the climacteric, which corresponds to the average age-incidence of carcinoma of the breast, the genital hormones, being no longer required to stimulate physiological development of the breast, undergo a degeneration and give rise to pathological development. It is a good working rule that the onus of the proof of any theory lies upon the author thereof; it is one thing to enunciate a hypothesis, but quite a different thing to bring it into line with such stubborn things as facts.

A few years ago this very theory was brought forward as the basis of a method of treatment of inoperable cancer of the breast. As has invariably happened in the history of malignant disease, some remarkable cures resulted from the new treatment, but favourable results became fewer with extended experience, and oöphorectomy is no longer performed for carcinoma of the breast. There is, in point of fact, no theoretical support for this form of treatment. The age-incidence of carcinoma of the breast is rather later than the climacteric, but, on the other hand, it is much the same as the age-incidence of carcinoma in other organs on which, so far as we know, ovarian hormones have no action whatever. Again, the fairly high incidence of the disease in women before the age of 40 and its occasional occurrence in the male are both inexplicable by this theory. There is plenty of evidence to show that reactive inflammatory lesions are the most constant precursors of the malignant change in the breast glands, but there is no anatomical basis for the belief that these changes are connected in any way with morbid processes in other organs.

## PUBLIC HEALTH AT COLOMBO, 1918.

THE population of Colombo at the middle of 1918 was estimated at 264,746, of whom 118,767 were native Sinhalese, 64,133 Tamils (Southern Indians), 46,643 Moors (of Arab descent), 17,361 Burghers (of Dutch or Portuguese origin), and 3700 Europeans, the remaining 14,142 consisting of Malays and others. The general birth-rate was 22·4 per 1000, and for Sinhalese it was 28·1; amongst Malays it was 41·2, and amongst Tamils only 13·2 per 1000. The general crude death-rate was 28·0, compared with 29·0 for the decennium, 1908–17; as corrected for hospital deaths of non-residents and for age and sex constitution, the ratio was 29·4 per 1000; this is extremely satisfactory, considering the severe invasion of influenza. Amongst Malays the ratio was 37·4, Sinhalese 32·1, Tamils 23·2, Moors 24·7, and in Europeans only 13·0 per 1000; if corrected for deaths in institutions this last ratio is reduced to 9·5 per 1000. The chief cause of death was pulmonary disease in some form or other; the total mortality from this group of affections amounted to 2479 deaths (9·40 per 1000), pneumonia (6·12) and phthisis (2·53) being the chief causes, due to influenza. Of enteric fever there were 430 cases (1·62 per 1000), with 181 deaths; this gives a case-mortality of 42·1 per cent. (and in regard to Moors 65·7 per cent.), thus indicating that there must have been many cases not notified. There were only 13 cases among Europeans, with 3 deaths; all of these cases (except 3) contracted infection away from Colombo. The incidence of plague (0·27 cases per 1000) was lower than in any year since the commencement of the pandemic; there were only 70 cases (69 fatal),

[1] Light wood oil is a by-product obtained in the making of acetone by the destructive distillation of wood. We understand that at the present it is not in the commercial market, but probably the Ministry of Munitions would be able to supply institutions and other public bodies who required it. The price, probably a few pence per pound, would compare very favourably with sassafras oil.

35 being amongst Tamils, and none occurring in the European population; the incidence was chiefly in St. Paul's Ward (25 cases), and the rat infection, though on the whole slight (0·29 per cent. infected out of 21,000 examined), was considerable in the Fort Ward, where it was promptly suppressed by the use of Clayton fumigators and pesterine. Influenza became epidemic in Colombo in June and July, especially in the neighbourhood of the harbour, but was of mild type (6 cases fatal) and rapidly disappeared. During the third week in September a fresh outbreak occurred, complicated with a very virulent and rapidly fatal form of pneumonia; the actual number of cases cannot be stated, but in October and November 9200 cases (including 961 cases of pneumonia) were treated by the municipal staff alone. There were 275 deaths actually recorded throughout the year, but Dr. William Marshall Philip, the medical officer of health, who presents this very interesting report, considers that this figure does not by any means represent the real mortality due to the disease. The total deaths from pulmonary affections registered in 1918 were 21 per cent. in excess of the average for 1903-1918 (7·77 per 1000), and for pneumonia alone 80 per cent. above the mean (3·40 per 1000). This is graphically illustrated by diagrams. The report is accompanied by an excellent map, which adds considerably to its value.

## MALARIA IN THE FEDERATED MALAY STATES.

IN 1911 a Board was constituted for the purpose of advising the Government of the Federated Malay States in the carrying out of a general campaign against malaria. Its chief aims were the collection of information as to the causes, incidence, and effects of the disease, the education of the people in this connexion, and the extermination of anopheles in all thickly populated centres, and (where practicable) in rural areas. The Board has for its president the Chief Secretary to Government, Sir Edward Brockman, K.C.M.G., and the principal medical officer, Dr. C. L. Sansom, C.M.G., for its vice-president. The executive engineer operates under the authority of the Board; the medical entomologist reports to the Board, but is independent as regards methods of investigation and expression of opinion. Dr. C. Strickland was medical entomologist from 1912 to 1917, in which latter year he presented his final report on the biology of the anopheles mosquitoes of the Malay peninsula. Dr. Strickland was succeeded by Dr. H. P. Hacker in February, 1917. The report states that:—

> The experimental work done on the relation between mosquitoes and malaria is mainly of value as indicating the lines on which further investigations should proceed. Experiments made in infecting various species of mosquitoes and in transmitting malaria from man to man, and observations on the prevalence of various species, their breeding places, and other features, have clearly pointed to the existence of factors which are not yet understood, and the importance of further and adequate researches to elucidate such factors. ..... It would appear that severe malaria has occurred at times when but few anophelines or little anopheline breeding were evident, and that little malaria has been apparent when anophelines were numerous. ..... The further study of species is therefore essential.

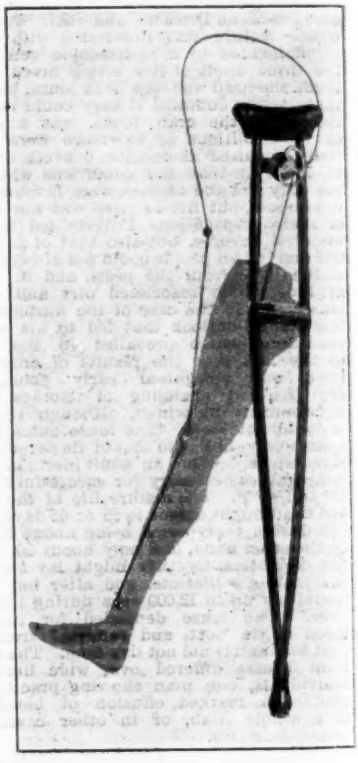
Mistakes appear to have been made in the drainage operations undertaken some years back, but since the end of 1912 "it could be safely claimed that malarial infection was rare within the district protected by drainage." Since then the works have been considerably extended, though war conditions have caused delay. Oiling of breeding-places has also been practised. Dr. Strickland's observations led him to the belief that in most hill land jungle no malaria-carrying anopheles exist, and that the preservation of such jungle in hill land ravines and swamps is an important anti-malarial measure; he did not apply the argument to coastal jungle other than mangrove forest, and obviously great watchfulness as to results would be necessary. Kuala Lumpur, the seat of government for the Federated States, with a population of 47,000, has now been provided with efficient land drainage for an area of 4500 acres, and at an expense of 231,679 dollars for construction, with an annual maintenance charge of 10,000 dollars; drainage works are in hand for a considerable additional area in the low ground to the north and east, and some high ground to the west is receiving attention from private authorities. The report concludes with the statement that "malaria is beyond dispute the great natural obstacle to the economical and humane development of the Malay States, and equally concerns all classes of the community." That it will yield to a suitable campaign admits of no doubt, and the progress already made is a sufficient guarantee.

## METRIC PRESCRIBING.

*To the Editor of* THE LANCET.

SIR,—With reference to Dr. Wright Hardwicke's interesting letter in your issue of Jan. 17th, saying that it is the continental custom of placing the denomination instead of the decimal point between the integer and fraction (for instance, 8 g. 5 instead of 8·5 g.), in this method there would seem to be contravention of two of the rules laid down by an International Committee (that is, according to the Reichs-Medizinal Kalender, by Dr. Paul Börner, published in 1914). He there states: "Die offiziellen Abkürzungen für die Masseinheiten sind gelegentlich der letzten Sitzung des internationalen Komitees für Masse und Gewichte festgesetzt worden," and adds, as rule No. 1, "Den Buchstaben werden Schlusspunkte nicht beigefügt" (the letters will not be followed by any fullstop). Thus I understand 5 g not 5 g. is meant. Rule No. 2, "Die Buchstaben werden an das Ende der vollständigen Zahlenausdrücke—nicht über das Dezimalkomma derselben—gesetzt, also 5,37 m—nicht 5 m 37 und nicht 5 m 37 cm." (The letters will be placed at the end of the complete figure expression, not against the decimal comma, thus 5,37 m—not 5 m 37 and not 5 m 37 cm.)—I am, Sir, yours faithfully,

Jan. 18th, 1920. W.

## A CRUTCH WHICH ENABLES A PARAPLEGIC TO WALK.

AT the meeting of the Académie de Médecine of Paris on Dec. 2nd last M. Gabriel Bidou showed a very ingenious mechanism which can be applied to any crutch; it works by utilising pressure of the hand on a lever to elevate and flex the lower limbs on the pelvis. It is particularly useful in all forms of paraplegia, but may also be used in cases of paresis or temporary weakness of the lower limbs. It consists of a pulley, on which runs a cord, and of an "eccentric," or cam, as engineers term it, fixed on the same axis as the pulley. Smoothness of movement is ensured by ball-bearings. The whole is fixed to a cross-bar, which can be attached to the upper part of the crutch by two screws. To the handle of the crutch there is also fixed, by two screws, a steel cap bearing a lever which is controlled by the hand. A leather thong attached to the uprights of the crutch, into which the patient passes his arm, as if he were carrying a buckler, allows him to use the crutch while preserving freedom of the hand. A cord connects the lever with the pulley, and another cord connects the cam with the patient's leg, passing through a protective sheath, like that of the brake of a bicycle, beneath the clothes. The apparatus is used as follows. The paraplegic supports himself on four points—the two lower limbs and the two crutches. His centre of gravity then lies over the middle of the quadrilateral so formed. He walks in the following manner. Carrying slightly the weight of his body to one side he transforms the basis of support into a triangle formed by the two crutches and one lower limb. Thus by the lateral inclination of the body he sets free the other lower limb. At this moment he leans on the lever and raises the limb. When the limb has been brought forward and applied to the ground the paraplegic will bear on it, and his triangle of support, instead of being right, for example, will become left. He then goes through the same process with the other limb, and so progresses. The cord which drags the lower limb may be attached to the front of the boot by a ring, either on the right side or the left, according as it has to pull against opposition of adductors or abductors. This simple apparatus ought to prove most useful.